M E M O R A N D U M

TO: Davis Ave Fire Response Site, Emergency Response Site File

cc: John McKeown, On-Scene Coordinator (OSC), U.S. Environmental Protection Agency (EPA) Region I, Emergency Planning and Response Branch (EPRB)

FROM: Bill Mahany, Site Leader, Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team IV (START)

DATE: 12 August 2016

RE: Emergency Response Activities at the Davis Ave Fire Response Site, Norwood, Massachusetts. TDD Number (No.) TO1-01-16-06-0007; Task No. 0132; Document Control (DC) No. R-00229.

INTRODUCTION

At approximately 2300 hours on 15 June 2016, a fire occurred in an abandoned, vacant building located at 59 Davis Avenue, Norwood, Norfolk County, Massachusetts.

The vacant building is located directly over Hawes Brook, a tributary of the Neponset River. Norwood Fire Department personnel fought the fire throughout the night with large amounts of water, which entered Hawes Brook and subsequently triggered a fish-kill at downstream overflow ponds in a local park area. According to state and local responders, the source of the fish-kill was presumed to be the fire water run-off, which also accumulated near the burning building in both red and green-colored puddles.

At approximately 1000 hours on 16 June 2016, U.S. Environmental Protection Agency (EPA) On-Scene Coordinator (OSC) and EPA Phone Duty, Mike Barry contacted Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) Phone Duty Paul Callahan to request START support for an emergency response in Norwood, MA.

START member Callahan notified START members Bill Mahany, Chris Dupree, Bonnie Mace and Andrew Danikas of the emergency response, and the team was deployed to meet U.S. EPA OSC John McKeown at the site to conduct water sampling and emergency response activities. START member Callahan prepared a site-specific health and safety plan (HASP) that was forwarded electronically to the START response team while en route to the scene.

SITE DESCRIPTION

The Davis Ave Fire Response Site (the site) is located at 59 Davis Avenue, Norwood, Norfolk County, Massachusetts (MA) (see Attachment A, Figure 1). The geographic coordinates of the site, as measured from the approximate center, are approximately 42° 10' 35" north latitude and 71° 13' 3" west longitude. The site is located in an industrial/commercial area of Norwood,

MA, and consists of an approximately 0.60-acre parcel containing a 16,640-square-foot building. The building is identified by the Town of Norwood Tax Assessors as Book 24243, Page 94, Property ID 8_4_D_48. The building has been vacant for at least 10 years, and is currently owned by Reuben Gordon Pike of Hudson, Florida. The site is bordered to the north and west by industrial and commercial properties, to the east by Hawes Brook and industrial and commercial properties, and to the south by wooded areas (see Attachment A, Figure 2).

Massachusetts Department of Environmental Protection (MassDEP) representatives, as well as Norwood Fire personnel, communicated that it was their understanding that the facility was a former tannery that contained miscellaneous drums and tanks of unknown contents and quantities. Fire water run-off puddles located along the southeast and northeast corners of the building reportedly had a green and red color, respectively.

SITE ACTIVITIES

16 June 2016

On 16 June 2016 at approximately 1200 hours, START members Mahany and Dupree arrived on site and met with OSC McKeown, and MassDEP responders Jaime Goncalves and Edward Burke. Personnel from the Norwood Fire Department, Police Department, and Health Department, and personnel from the Neponset River Watershed Association were on site. START members Mace and Danikas arrived on site at 1240 hours, and EPA and START discussed the fire water run-off and fish-kill and reviewed and signed the site-specific Health and Safety Plan (HASP). The site-specific HASP was prepared as a separate document, entitled *Weston Solutions, Inc., Region I START Site Health and Safety Plan (HASP) for the 59 Davis Ave Fire Response Site.* START personnel prepared air monitoring instruments, including a MultiRAE Plus combustible gas indicator/oxygen (CGI/O_2) instrument with carbon monoxide (CO), volatile organic compound (VOC), hydrogen sulfide (H_2S), lower explosive limit (LEL), and oxygen (O_2) sensors.

At approximately 1300 hours, START began preparations to collect water samples. A total of five surface water samples (SW-01 through SW-05) were collected. SW-01 and SW-02 were collected from fire water run-off puddles located near the southwest and northeast corners of the building, respectively. SW-03 was collected from Hawes Brook, upstream of the fire; SW-04 was collected from the outfall in the western pond located in Endean Playground; and SW-05 was collected from below a train trestle located upstream of the Endean Playground area (see Attachment A, Figure 2). START photo-documented site conditions (see Attachment B, Photo-Documentation Log). After sampling activities were completed, START began sample packaging and Scribe chain-of-custody generation.

At approximately 1425 hours, START member Paul Callahan arrived on site to retrieve samples SW-01, SW-02, and SW-03 so that they could be delivered to the EPA Office of Environmental

Measurement and Evaluation (OEME) Laboratory in North Chelmsford, Massachusetts. Surface water samples SW-01, SW-02, and SW-03 were submitted for semivolatile organic compounds (SVOC), metals (including mercury), cyanide, and pH analyses.

17 June 2016

On 17 June, START members Mahany and Dupree delivered the remaining surface water samples (SW-04 and SW-05) to the EPA OEME Laboratory, and then proceeded to the site. Surface water samples SW-04 and SW-05 were submitted for SVOC, metals (including mercury), and cyanide, analyses.

START members Mahany and Dupree arrived on site and met with OSC McKeown and OSC Dan Burgo. START and EPA utilized a Thermal Imaging Camera to scan the burned remains of the building for any drums or containers that had the potential to generate heat.

At approximately 1430 hours, OSC McKeown received approval to start an Emergency Removal Action at the site. The objective of the Emergency Removal Action was to partially disassemble the building to remove and secure any containers with hazardous substances to prevent any further contamination of Hawes Brook. A secondary objective was to prevent exposure to Asbestos Containing Materials (ACM) present within and around the damaged structure. START began to make arrangements for EPA warehouse equipment pickup and contacted START Field Chemist John Burton for asbestos laboratory procurement support.

At 1530 hours all personnel departed the site.

18 June 2016

On 18 June at 1000 hours, START member Mahany arrived on site. Four Colantuoni Brothers (owner of abutting property, subcontractor for Environmental Restoration (ER) LLC, personnel and two Norwood Fire Department personnel were also on site. At 1030 hours, ER LLC Emergency Rapid Response Services (ERRS) Response Manager (RM) Brian Fay arrived on site. At 1100 hours, five additional ERRS personnel arrived on site.

At 1230 hours, a health and safety briefing was conducted with all personnel. Items discussed during the briefing included dust control, personal protective equipment (PPE), slips/trips/falls, heavy equipment/swing areas, and drum/container handling. Colantuoni Brothers personnel would begin conducting building dismantling activities, while ERRS crew members would perform ACM and drum/container handling and staging. START member Mahany also began deployment of DustTrak™ particulate monitors and Gilian® air sampling pumps with 0.8 micron Mixed Cellulose Ester (MCE) asbestos cartridges attached at locations AS-01 and AS-02 (see Attachment A, Figure 2).

At 1330 hours, building dismantling activities began. Colantuoni Brothers operators placed ACM and drums/containers in a separate staging area from the metal/debris, which was placed into a roll-off container. START photo-documented site conditions (see Attachment B, Photo-Documentation Log).

At 1800 hours, dismantling activities were paused for the day. START Mahany collected all air monitoring equipment and conducted post-calibration activities. The asbestos air samples collected were secured. At 1830 hours, all personnel departed the site.

19 June 2016

On 19 June at 0700 hours, START member Mahany arrived on site. ERRS RM Fay, four ERRS crew members, three Colantuoni Brothers personnel, and two Norwood Fire Department personnel were also on site.

At 0730 hours, a health and safety briefing was conducted with all personnel. Items discussed during the briefing included dust control, PPE, slips/trips/falls, heavy equipment/swing areas, and drum/container handling. START Mahany also began deployment of DustTrak™ particulate monitors and Gilian® air sampling pumps at locations AS-01 through AS-04 (see Attachment A, Figure 2).

At 0800 hours, building dismantling activities resumed. Colantuoni Brothers operators placed ACM and drums/containers in a separate staging area from the metal/debris, which was placed into a roll-off container.

At approximately 1030 hours, a red-colored puddle of standing water from dust control activities was observed in the work/dismantling area. ERRS personnel utilized a drum-mounted vacuum to recover and contain the water.

At approximately 1200 hours, EPA and START Mahany conducted a reconnaissance of the ponds and the Hawes Brook inlet located in Endean Playground/Pool area.

At 1400 hours, dismantling activities were paused for the day. START Mahany collected all air monitoring equipment and conducted post-calibration activities. The asbestos air samples collected were secured. START photo-documented site conditions (see Attachment B, Photo-Documentation Log).

At 1430 hours, all personnel departed the site.

20 June 2016

On 20 June at 0700 hours, START member Mahany arrived on site. ERRS RM Fay, three ERRS crew members, and one Norwood Fire personnel were also on site.

At 0730 hours, a health and safety briefing was conducted with all personnel. Items discussed during the briefing included dust control, PPE, slips/trips/falls, and drum/container handling. START Mahany also began deployment of DustTrak™ particulate monitors and Gilian® air sampling pumps at locations AS-01 through AS-04 (see Attachment A, Figure 2).

At 0800 hours, final dismantling and staging/restoration activities resumed. ERRS crew members finished staging drums/containers and any remaining ACM. In addition, clean fill/gravel was delivered to the site by the town so that a secure berm could be built around the area directly above Hawes Brook.

At approximately 1200 hours, Sigalle Reiss of the Norwood Health Department and Al Goetz of the Norwood Conservation Department arrived on site to meet with OSC McKeown regarding site activities. Ms. Reiss and Mr. Goetz departed the site at 1245 hours.

At 1430 hours, all dismantling and staging activities were completed. START Mahany collected all air monitoring equipment and conducted post-calibration activities. At 1530 hours, all personnel departed the site. All asbestos air samples collected on 18-20 July were shipped via FedEx to Batta Laboratories, Newark, Delaware for asbestos analysis via Phase Contrast Microscopy (PCM). Selected samples were chosen for Transmission Electron Microscopy Analysis (TEM).

The Emergency Removal Action transitioned into a non-emergency Removal Action and cleanup activities continued.

Analytical Data Summaries

Surface Water Samples

START received the analytical data reports from EPA OEME laboratory between 20 and 23 June 2016 (see Attachment D). Twenty-four SVOCs were detected above the laboratory detection limits in the surface water samples. The following SVOCs (maximum concentration and sample number in parentheses) were detected: phenol [42 micrograms per liter (µg/L) in SW-01], benzyl alcohol (63 µg/L in SW-02), 2-Methylphenol (15 µg/L in SW-01), 3&4-Methylphenol (33 µg/L in SW-01), 2,4-dimethylphenol (11 µg/L in SW-01), benzoic acid (110 µg/L in SW-02), naphthalene (9.4 µg/L in SW-01), dimethyl phthalate (28 µg/L in SW-01), acenaphthylene (3.7 µg/L in SW-01), fluorene (4.0 µg/L in SW-01), phenanthrene (54 µg/L in SW-02), anthracene (3.6 µg/L in SW-01), carbazole (5.1 µg/L in SW-01), di-n-butylphthalate (3.6 µg/L in SW-05), fluoranthene (130

µg/L in SW-02), pyrene (120 µg/L in SW-02), benzo(a)anthracene (55 µg/L in SW-02), chrysene (63 µg/L in SW-02), bis(2-ethylhexyl)phthalate (6.5 µg/L in SW-01), benzo(b)fluoranthene (73 µg/L in SW-02), benzo(k)fluoranthene (61 µg/L in SW-02), benzo(a)pyrene (56 µg/L in SW-02), indeno(1,2,3-cd)pyrene (24 µg/L in SW-02), and benzo(g,h,i)perylene (27 µg/L in SW-02) (see Attachment C, Table 1) and Attachment D, Analytical Data and Chain-of-Custody Records, Surface Water Samples).

The highest concentrations of SVOCs were detected in SW-01 and SW-02, which were collected from green and red colored fire water run-off puddles located along the southwest and northeast corners of the building, respectively (see Attachment A, Figure 2).

Fourteen metals were detected above the laboratory detection limits in the surface water samples. The following metals (maximum concentration and sample number in parentheses) were detected: aluminum (6,600 µg/L in SW-02), barium (140 µg/L in SW-02), calcium (98,000 µg/L in SW-02), chromium (59 µg/L in SW-02), copper (100 µg/L in SW-02), iron (12,000 µg/L in SW-02), magnesium (4,500 µg/L in SW-02), manganese (370 µg/L in SW-04), nickel (32 µg/L in SW-01), lead (220 µg/L in SW-02), antimony (33 µg/L in SW-02), vanadium (39 µg/L in SW-02), and zinc (1,700 µg/L in SW-02). Mercury was not detected above the laboratory detection limit in any of the surface water samples (see Attachment C, Table 2) and Attachment D, Analytical Data and Chain-of-Custody Records, Surface Water Samples).

The highest concentrations of metals were detected in SW-02, which was collected from red colored fire water run-off puddles located along the northeast corner of the building (see Attachment A, Figure 2).

Cyanide was detected above the laboratory detection limits in only one of the surface water samples, SW-01 at a concentration of 33 µg/L (see Attachment C, Table 3). pH analysis was conducted on three surface water samples and ranged from 7.7 in SW-03 to 9.3 in SW-02 (see Attachment C, Table 3 and Attachment D, Analytical Data and Chain-of-Custody Records, Surface Water Samples).

Air Samples

On 22 June 2016, START received the asbestos in air analytical results from Batta Laboratories (see Attachment E). Asbestos was detected at all four locations; however, all asbestos results were below the action level of 0.025 fibers/cc. Sample AS-01, collected on 18 June, contained the highest result at 0.007 fibers/cc (see Attachment C, Table 4). Two samples, AS-03 and AS-04, collected on 19 and 20 June, respectively, were analyzed for asbestos by TEM. Asbestos was not detected above the detection limit in either of these samples (see Attachment C, Table 5 and Attachment E, Analytical Data and Chain-of-Custody Records, Asbestos in Air Samples).

Attachments

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Attachment A

Figures

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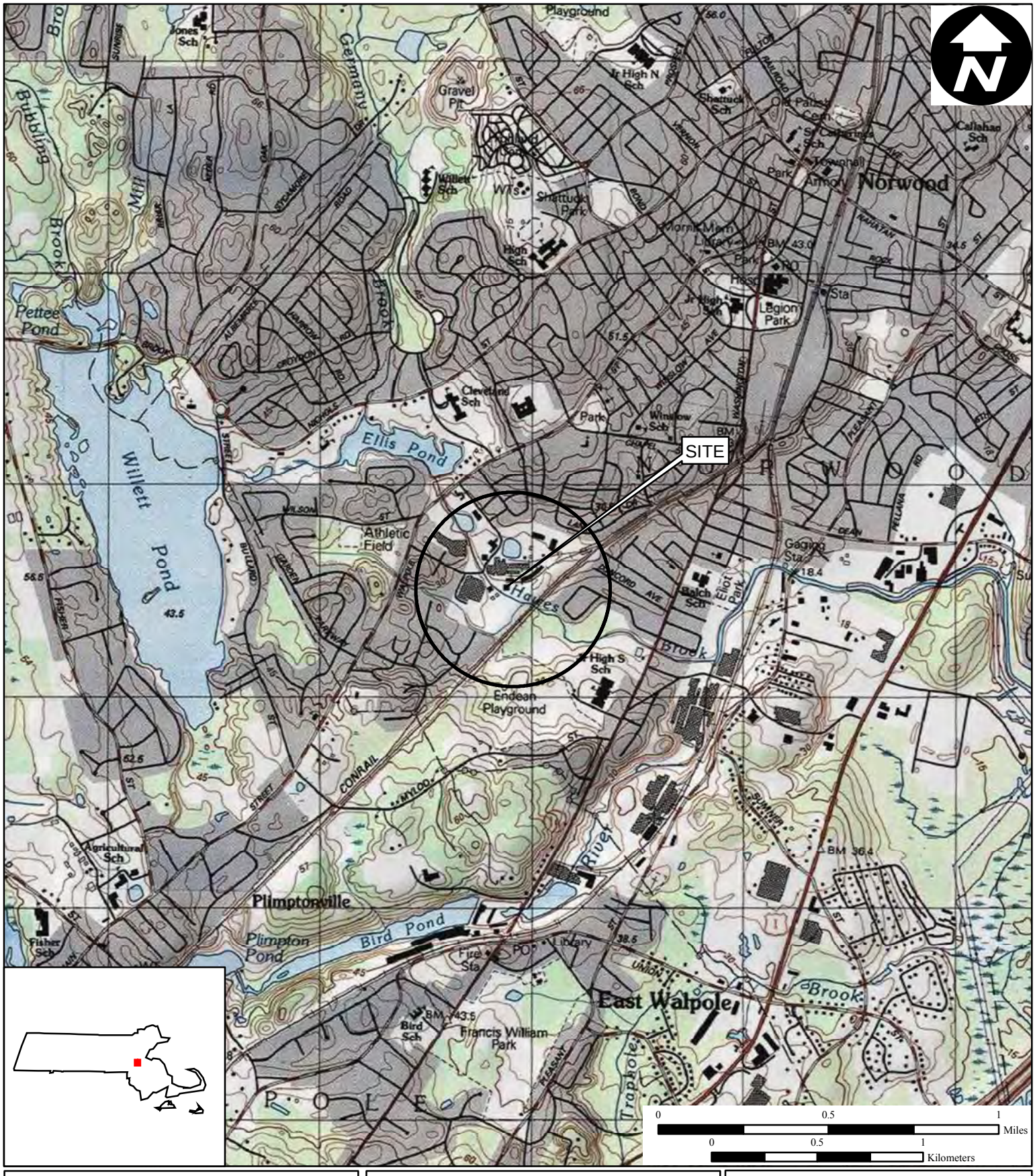

Figure 1

Site Location Map

Davis Ave. Fire Response Site
59 Davis Avenue
Norwood, Massachusetts

EPA Region I
Superfund Technical Assessment and Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number:	TO1-01-16-06-0007
Created by:	B.Mahany
Created on:	10 August 2016
Modified by:	B.Mahany
Modified on:	10 August 2016

Data Sources:
Topos: MicroPath/USGS/USA Topo Maps
Quadrangle Name: Norwood
All other data: START

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Figure 2

Sample Location Map

Davis Ave. Fire Response Site
59 Davis Avenue
Norwood, Massachusetts

EPA Region I
Superfund Technical Assessment and Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number:	TO1-01-16-06-0007
Created by:	B. Mahany
Created on:	10 August 2016
Modified by:	B. Mahany
Modified on:	10 August 2016

LEGEND

- Building Footprint
- Air Monitoring Location
- Surface Water Sample
- Hawes Brook

N

0 50 100 200 300
Feet

Data Sources:

Imagery: ESRI, i-cubed, USDA FSA, USGS AEX, GeoEye, Getmapping, Aerogrid, IGP
Topos: MicroPath
All other data: START

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Attachment B

Photo-documentation Log

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PHOTODOCUMENTATION LOG
Davis Ave (#59) Fire Response Site ● Norwood, Massachusetts

SCENE: View of sample location SW-01. Photograph taken facing northeast.

DATE: 16 June 2016 **TIME:** 1219 hours
PHOTOGRAPHER: C. Dupree **CAMERA:** iPhone 6

SCENE: View of sample location SW-02. Photograph taken facing north.

DATE: 16 June 2016 **TIME:** 1315 hours
PHOTOGRAPHER: B. Mace **CAMERA:** iPhone 6

SCENE: View of sample location SW-04. Photograph taken facing north.

DATE: 16 June 2016 **TIME:** 1404 hours
PHOTOGRAPHER: B. Mace **CAMERA:** iPhone 6

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O
P

SCENE: View of sample location SW-05. Photograph taken facing north.

DATE: 16 June 2016 **TIME:** 1416 hours
PHOTOGRAPHER: B. Mace **CAMERA:** iPhone 6

SCENE: View of potential Asbestos Containing Material (ACM) on the northeast side of the burned building. Photograph taken facing southwest.
DATE: 17 June 2016 **TIME:** 1148 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of tanks and containers inside the burned building. Photograph taken facing southwest.

DATE: 17 June 2016 **TIME:** 1148 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of building dismantling activities. Photograph taken facing southeast.

DATE: 17 June 2016 **TIME:** 1523 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of building dismantling activities and tanks. Photograph taken facing southeast.

DATE: 17 June 2016 **TIME:** 1730 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of tanks removed from the burned building. Photograph taken facing southeast.

DATE: 19 June 2016 **TIME:** 1259 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of tanks removed from the burned building. Photograph taken facing east.

DATE: 19 June 2016 **TIME:** 1300 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of tanks removed from the burned building. Photograph taken facing east.

DATE: 19 June 2016 **TIME:** 1300 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of completed dismantling activities on the southwestern corner of the building. Photograph taken facing east.
DATE: 19 June 2016 **TIME:** 1302 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of completed dismantling activities on the western side of the building. Photograph taken facing east.

DATE: 19 June 2016 **TIME:** 1303 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

SCENE: View of completed dismantling activities on the northwestern corner of the building. Photograph taken facing east.

DATE: 19 June 2016 **TIME:** 1303 hours
PHOTOGRAPHER: B. Mahany **CAMERA:** iPhone 6

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Attachment C

Table 1 - Summary of Semivolatile Organic Compounds in Surface Water
Table 2 - Summary of Metals in Surface Water
Table 3 - Summary of Cyanide of pH in Surface Water
Table 4 - Summary of Asbestos in Air by Phase Contrast Microscopy
Table 5 - Summary of Asbestos in Air by Transmission Electron Microscopy

TABLE 1

SUMMARY OF SEMIVOLATILE ORGANIC COMPOUNDS
IN SURFACE WATER
DAVIS AVE FIRE RESPONSE SITE
NORWOOD, MASSACHUSETTS

SAMPLE NUMBER	0616-0001	0616-0002	0616-0003	0616-0004	0616-0005
SAMPLE LOCATION	SW-01	SW-02	SW-03	SW-04	SW-05
LABORATORY NUMBER	AB62193	AB62194	AB62195	AB62196	AB62197
DATE SAMPLED	6/16/16	6/16/16	6/16/16	6/16/16	6/16/16
COMPOUNDS					
Phenol	42	27	ND	ND	ND
Benzyl alcohol	ND	63	ND	ND	ND
2-Methylphenol	15	ND	ND	ND	ND
3&4-Methylphenol	33	ND	ND	ND	ND
2,4-dimethylphenol	11	ND	ND	ND	ND
Benzoic acid	63	110	ND	ND	ND
Naphthalene	9.4	ND	ND	ND	ND
Dimethyl phthalate	28	ND	ND	14	ND
Acenaphthylene	3.7	ND	ND	ND	ND
Fluorene	4.0	ND	ND	ND	ND
Phenanthrene	22	54	ND	3.2	ND
Anthracene	3.6	ND	ND	ND	ND
Carbazole	5.1	ND	ND	ND	ND
Di-n-butylphthalate	ND	ND	3.3	3.2	3.6
Fluoranthene	19	130	ND	ND	ND
Pyrene	17	120	ND	ND	ND
Benzo(a)anthracene	5.3	55	ND	ND	ND
Chrysene	6.3	63	ND	ND	ND
Bis(2-ethylhexyl)phthalate	6.5	ND	ND	2.0 L	ND
Benzo(b)fluoranthene	6.7 J	73	ND	ND	ND
Benzo(k)fluoranthene	5.7 J	61	ND	ND	ND
Benzo(a)pyrene	4.2 J	56	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	24	ND	ND	ND
Benzo(g,h,i)perylene	2.9 J	27	ND	ND	ND

NOTES:

1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 16 June 2016.
2) Samples analyzed by U.S Environmental Protection Agency, Office of Environmental Measurement & Evaluation, North Chelmsford, MA using EPA Region I SOP, EIASOP-BNAW7 and EIASOP-BNAGCMS9.
3) Results are reported in micrograms per liter (µg/L).
4) ND = Not detected above the laboratory reporting limit.
5) J = Estimated value due to low area of internal standard; attributable to the physical nature of the sample.
6) L = Estimated value is below the calibration range.

TABLE 2

SUMMARY OF METALS
IN SURFACE WATER
DAVIS AVE FIRE RESPONSE SITE
NORWOOD, MASSACHUSETTS

SAMPLE NUMBER	0616-0001	0616-0002	0616-0003	0616-0004	0616-0005
SAMPLE LOCATION	SW-01	SW-02	SW-03	SW-04	SW-05
LABORATORY NUMBER	AB62193	AB62194	AB62195	AB62196	AB62197
DATE SAMPLED	6/16/16	6/16/16	6/16/16	6/16/16	6/16/16
METALS					
Aluminum	1,200	6,600	ND	1,100	ND
Barium	37	140	60	97	65
Calcium	26,000	98,000	15,000	23,000	17,000
Chromium	56	59	ND	ND	ND
Copper	25	100	ND	ND	ND
Iron	2,000	12,000	760	3,000	710
Magnesium	1,600	4,500	3,500	4,100	3,700
Manganese	85	320	120	370	85
Nickel	32	28	ND	ND	ND
Lead	100	220	ND	23	ND
Antimony	ND	33	ND	ND	ND
Vanadium	ND	39	ND	ND	ND
Zinc	390	1,700	ND	51	ND
Mercury	ND	ND	ND	ND	ND

NOTES:

1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 16 June 2016.
2) Samples analyzed by U.S Environmental Protection Agency, Office of Environmental Measurement & Evaluation, North Chelmsford, MA using EPA Region I SOP, EIASOP-OPTIMAS0 and EIASOP-INGDMA1.
3) Results are reported in micrograms per liter (µg/L).
4) ND = Not detected above the laboratory reporting limit.

TABLE 3

SUMMARY OF CYANIDE AND pH
IN SURFACE WATER
DAVIS AVE FIRE RESPONSE SITE
NORWOOD, MASSACHUSETTS

SAMPLE NUMBER	0616-0001	0616-0002	0616-0003	0616-0004	0616-0005
SAMPLE LOCATION	SW-01	SW-02	SW-03	SW-04	SW-05
LABORATORY NUMBER	AB62193	AB62194	AB62195	AB62196	AB62197
DATE SAMPLED	6/16/16	6/16/16	6/16/16	6/16/16	6/16/16
CYANIDE AND pH					
Cyanide	33	ND	ND	ND	ND
pH	9.0	9.3	7.7	NA	NA

NOTES:

1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 16 June 2016.
2) Samples analyzed by U.S Environmental Protection Agency, Office of Environmental Measurement & Evaluation, North Chelmsford, MA using EPA Region I SOP, EIASOP-INGCN15 and EIASOP-INGPH6.
3) Results are reported in micrograms per liter (µg/L).
4) ND = Not detected above the laboratory reporting limit.
5) NA = Not analyzed.

TABLE 4

SUMMARY OF
ASBESTOS IN AIR
PHASE CONTRAST MICROSCOPY
DAVIS AVE FIRE RESPONSE SITE
NORWOOD, MASSACHUSETTS

SAMPLE NUMBER	D34031	D34032	D34033	D34034	D34035	D34036
SAMPLE LOCATION	AS-01	AS-02	AS-01	AS-02	AS-03	AS-04
LABORATORY NUMBER	878723	878724	878725	878726	878727	878728
DATE SAMPLED	6/18/16	6/18/16	6/19/16	6/19/16	6/19/16	6/19/16
VOLUME (L)	596.2	734.43	800.84	892.68	656.08	746.4
DETECTION LIMIT (DL)	0.005	0.004	0.003	0.003	0.004	0.004
ANALYTE						
Asbestos	0.007	0.004	<0.003	<0.003	0.006	0.004

SAMPLE NUMBER	D34037	D34038	D34039	D34040	D34041	D34042
SAMPLE LOCATION	AS-01	AS-02	AS-03	AS-04	FB-01	LB-01
LABORATORY NUMBER	878729	878730	878731	878732	878733	878734
DATE SAMPLED	6/20/16	6/20/16	6/20/16	6/20/16	6/20/16	6/20/16
VOLUME (L)	1,061.75	1,128.23	1,031.73	1,255.06	0	0
DETECTION LIMIT (DL)	0.003	0.002	0.003	0.002		
ANALYTE						
Asbestos	<0.003	<0.002	0.004	0.003	ND	ND

NOTES:

1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 18 - 20 June 2016.
2) Samples analyzed by BATTA Laboraties, LLC, Newark, Delaware, using National Institute of Occupational Safety and Health (NIOSH 7400), asbestos by Phase Contrast Microscopy (PCM).
3) Results are reported in Fibers per cubic centimeter (F/cc).
4) DL = Laboratory detection limit.
5) ND = No fibers detected.
6) L = Liters.
7) FB-01 is the field blank.
8) LB-01 is the lot blank.

TABLE 5

SUMMARY OF
ASBESTOS IN AIR
TRANSMISSION ELECTRON MICROSCOPY
DAVIS AVE FIRE RESPONSE SITE
NORWOOD, MASSACHUSETTS

SAMPLE NUMBER	D34035	D34040
SAMPLE LOCATION	AS-03	AS-04
LABORATORY NUMBER	879233	879234
DATE SAMPLED	6/19/16	6/20/16
VOLUME (L)	656.08	1,255.06
DETECTION LIMIT (DL)	0.004	0.002
ANALYTE		
Asbestos	<0.004	<0.002

NOTES:

1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 19 and 20 June 2016.
2) Samples analyzed by BATTA Laboraties, LLC, Newark, Delaware, using National Institute of Occupational Safety and Health (NIOSH 7402), asbestos by Transmission Electron Microscopy (TEM).
3) Results are reported in Fibers per cubic centimeter (F/cc).
4) DL = Laboratory detection limit.
5) L = Liters.

Attachment D

Analytical Data and Chain-of-Custody Records
Surface Water Samples

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United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

June 21, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16060019
Project: Norwood Dye Run-off
Analysis: BNAs in Water
EPA Chemist: Inna Germansderfer

Date Samples Received by the Laboratory: 06/16/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-BNAW3.

Samples were prepared using separatory funnel liquid-liquid extraction. The samples were analyzed using high resolution capillary column chromatography and quadrapole mass spectrometry (GC/MS). The SOP for this method is based on the US EPA SW-846 Methods 3510C, 8270C, Method 625, and EIASOP-BNAGCMS9.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.21 11:32:06 -04'00'

16060019$BNAW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0001	Lab Sample ID:	AB62193
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	2.5	
110-86-1	Pyridine	ND	2.5	
66-27-3	Methyl methanesulfonate	ND	2.5	
62-50-0	Ethyl methanesulfonate	ND	2.5	
108-95-2	Phenol	**42**	2.5	
62-53-3	Aniline	ND	2.5	
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5	
95-57-8	2-Chlorophenol	ND	2.5	
541-73-1	1,3-Dichlorobenzene	ND	2.5	
106-46-7	1,4-Dichlorobenzene	ND	2.5	
100-51-6	Benzyl alcohol	ND	2.5	
95-50-1	1,2-Dichlorobenzene	ND	2.5	
95-48-7	2-Methylphenol	**15**	2.5	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5	
98-86-2	Acetophenone	ND	2.5	
108-39-4/106-44-5	3&4-Methylphenol	**33**	5.0	
621-64-7	N-nitroso-di-n-propylamine	ND	2.5	
67-72-1	Hexachloroethane	ND	2.5	
98-95-3	Nitrobenzene	ND	2.5	
78-59-1	Isophorone	ND	2.5	
88-75-5	2-Nitrophenol	ND	2.5	
105-67-9	2,4-dimethylphenol	**11**	2.5	
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5	
65-85-0	Benzoic acid	**63**	10	
120-83-2	2,4-Dichlorophenol	ND	2.5	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	
91-20-3	Naphthalene	**9.4**	2.5	
87-65-0	2,6-Dichlorophenol	ND	2.5	
106-47-8	4-Chloroaniline	ND	2.5	
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	2.5	
131-11-3	Dimethyl phthalate	**28**	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0001	Lab Sample ID:	AB62193
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	**3.7**	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	**4.0**	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	2.5	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	**22**	2.5	
120-12-7	Anthracene	**3.6**	2.5	
86-74-8	Carbazole	**5.1**	2.5	
84-74-2	Di-n-butylphthalate	ND	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	
206-44-0	Fluoranthene	**19**	2.5	
92-87-5	Benzidine	ND	2.5	
129-00-0	Pyrene	**17**	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.5	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	**5.3**	2.5	
218-01-9	Chrysene	**6.3**	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	**6.5**	2.5	
117-84-0	Di-n-octyl phthalate	ND	2.5	
205-99-2	Benzo(b)fluoranthene	**6.7**	2.5	J
207-08-9	Benzo(k)fluoranthene	**5.7**	2.5	J
50-32-8	Benzo(a)pyrene	**4.2**	2.5	J
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0001	Lab Sample ID:	AB62193
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	**2.9**	2.5	J

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	53	15 - 78
Phenol-d6 (SS2)	39	10 - 65
Nitrobenzene-d5 (SS3)	84	30 - 120
2-Fluorobiphenyl (SS4)	83	39 - 120
2,4,6-Tribromophenol (SS5)	92	10 - 126
p-Terphenyl-d14 (SS6)	107	60 - 133

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

J- estimated value due to the low area of IS; attributed to the physical nature of the sample.

Tentatively Identified non Target Analytes

Dipropylene glycol monomethyl ether	140 ppb, J
Nonanoic acid	1400 ppb, J
n-Decanoic acid	80 ppb, J
Dodecanoic acid	180ppb, J
Tridecanoic acid	70 ppb, J
Tetradecanoic acid	180 ppb, J
n-Hexadecanoic acid	180 ppb, J

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0002	Lab Sample ID:	AB62194
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	25	
110-86-1	Pyridine	ND	25	
66-27-3	Methyl methanesulfonate	ND	25	
62-50-0	Ethyl methanesulfonate	ND	25	
108-95-2	Phenol	**27**	25	
62-53-3	Aniline	ND	25	
111-44-4	Bis(2-Chloroethyl)ether	ND	25	
95-57-8	2-Chlorophenol	ND	25	
541-73-1	1,3-Dichlorobenzene	ND	25	
106-46-7	1,4-Dichlorobenzene	ND	25	
100-51-6	Benzyl alcohol	**63**	25	
95-50-1	1,2-Dichlorobenzene	ND	25	
95-48-7	2-Methylphenol	ND	25	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	25	
98-86-2	Acetophenone	ND	25	
108-39-4/106-44-5	3&4-Methylphenol	ND	50	
621-64-7	N-nitroso-di-n-propylamine	ND	25	
67-72-1	Hexachloroethane	ND	25	
98-95-3	Nitrobenzene	ND	25	
78-59-1	Isophorone	ND	25	
88-75-5	2-Nitrophenol	ND	25	
105-67-9	2,4-dimethylphenol	ND	25	
111-91-1	bis(-2-Chloroethoxy)methane	ND	25	
65-85-0	Benzoic acid	**110**	100	
120-83-2	2,4-Dichlorophenol	ND	25	
120-82-1	1,2,4-Trichlorobenzene	ND	25	
91-20-3	Naphthalene	ND	25	
87-65-0	2,6-Dichlorophenol	ND	25	
106-47-8	4-Chloroaniline	ND	25	
1888-71-7	Hexachloropropene	ND	25	
87-68-3	Hexachlorobutadiene	ND	25	
59-50-7	4-Chloro-3-methylphenol	ND	25	
120-58-1	Isosafrole	ND	25	
91-57-6	2-Methylnaphthalene	ND	25	
90-12-0	1-Methylnaphthalene	ND	25	
77-47-4	Hexachlorocyclopentadiene	ND	100	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	25	
88-06-2	2,4,6-Trichlorophenol	ND	25	
95-95-4	2,4,5-Trichlorophenol	ND	25	
94-59-7	Safrole	ND	25	
91-58-7	2-Chloronaphthalene	ND	25	
88-74-4	2-Nitroaniline	ND	25	
130-15-4	1,4-Naphthoquinone	ND	25	
131-11-3	Dimethyl phthalate	ND	25	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0002	Lab Sample ID:	AB62194
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	50	
606-20-2	2,6-Dinitrotoluene	ND	25	
208-96-8	Acenaphthylene	ND	25	
99-09-2	3-Nitroaniline	ND	25	
83-32-9	Acenaphthene	ND	25	
51-28-5	2,4-Dinitrophenol	ND	100	
100-02-7	4-Nitrophenol	ND	25	
608-93-5	Pentachlorobenzene	ND	25	
132-64-9	Dibenzofuran	ND	25	
121-14-2	2,4-Dinitrotoluene	ND	25	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	25	
84-66-2	Diethylphthalate	ND	25	
86-73-7	Fluorene	ND	25	
7005-72-3	4-Chlorophenyl-phenylether	ND	25	
100-01-6	4-Nitroaniline	ND	50	
534-52-1	4,6-Dinitro-2-methylphenol	ND	100	
86-30-6	N-Nitrosodiphenylamine	ND	25	
103-33-3	Azobenzene	ND	25	
62-44-2	Phenacetin	ND	25	
101-55-3	4-Bromophenyl-phenylether	ND	25	
118-74-1	Hexachlorobenzene	ND	25	
87-86-5	Pentachlorophenol	ND	100	
82-68-8	Pentachloronitrobenzene	ND	25	
85-01-8	Phenanthrene	**54**	25	
120-12-7	Anthracene	ND	25	
86-74-8	Carbazole	ND	25	
84-74-2	Di-n-butylphthalate	ND	25	
56-57-5	4-nitroquinoline-1-oxide	ND	100	
465-73-6	Isodrin	ND	25	
206-44-0	Fluoranthene	**130**	25	
92-87-5	Benzidine	ND	25	
129-00-0	Pyrene	**120**	25	
510-15-6	Chlorobenzilate	ND	25	
85-68-7	Butylbenzylphthalate	ND	25	
91-94-1	3,3'-Dichlorobenzidine	ND	25	
56-55-3	Benzo(a)anthracene	**55**	25	
218-01-9	Chrysene	**63**	25	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	25	
117-84-0	Di-n-octyl phthalate	ND	25	
205-99-2	Benzo(b)fluoranthene	**73**	25	
207-08-9	Benzo(k)fluoranthene	**61**	25	
50-32-8	Benzo(a)pyrene	**56**	25	
56-49-5	3-Methylcholanthrene	ND	25	
193-39-5	Indeno(1,2,3-cd)pyrene	**24**	25	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0002	Lab Sample ID:	AB62194
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	25	
191-24-2	Benzo(g,h,i)perylene	**27**	25	

Surrogate Compounds	Recoveries (%)	QC Ranges
Nitrobenzene-d5 (SS3)	95	30 - 120
2-Fluorobiphenyl (SS4)	85	39 - 120
2,4,6-Tribromophenol (SS5)	90	10 - 126
p-Terphenyl-d14 (SS6)	95	60 - 133
2-Fluorophenol (SS1)	53	15 - 78
Phenol-d6 (SS2)	40	10 - 65

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

Tentatively Identified non Target Analytes

Nonanoic acid	270 ppb, J
Dodecyltrimethylammonium bromide	70 ppb, J
Tetradecanoic acid	60 ppb, J
n-Hexadecanoic acid	90 ppb, J

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0003	Lab Sample ID:	AB62195
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	2.5	
110-86-1	Pyridine	ND	2.5	
66-27-3	Methyl methanesulfonate	ND	2.5	
62-50-0	Ethyl methanesulfonate	ND	2.5	
108-95-2	Phenol	ND	2.5	
62-53-3	Aniline	ND	2.5	
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5	
95-57-8	2-Chlorophenol	ND	2.5	
541-73-1	1,3-Dichlorobenzene	ND	2.5	
106-46-7	1,4-Dichlorobenzene	ND	2.5	
100-51-6	Benzyl alcohol	ND	2.5	
95-50-1	1,2-Dichlorobenzene	ND	2.5	
95-48-7	2-Methylphenol	ND	2.5	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5	
98-86-2	Acetophenone	ND	2.5	
108-39-4/106-44-5	3&4-Methylphenol	ND	5.0	
621-64-7	N-nitroso-di-n-propylamine	ND	2.5	
67-72-1	Hexachloroethane	ND	2.5	
98-95-3	Nitrobenzene	ND	2.5	
78-59-1	Isophorone	ND	2.5	
88-75-5	2-Nitrophenol	ND	2.5	
105-67-9	2,4-dimethylphenol	ND	2.5	
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5	
65-85-0	Benzoic acid	ND	10	
120-83-2	2,4-Dichlorophenol	ND	2.5	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	
91-20-3	Naphthalene	ND	2.5	
87-65-0	2,6-Dichlorophenol	ND	2.5	
106-47-8	4-Chloroaniline	ND	2.5	
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	2.5	
131-11-3	Dimethyl phthalate	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0003	Lab Sample ID:	AB62195
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	ND	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	ND	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	2.5	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	ND	2.5	
120-12-7	Anthracene	ND	2.5	
86-74-8	Carbazole	ND	2.5	
84-74-2	Di-n-butylphthalate	**3.3**	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	
206-44-0	Fluoranthene	ND	2.5	
92-87-5	Benzidine	ND	2.5	
129-00-0	Pyrene	ND	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.5	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	ND	2.5	
218-01-9	Chrysene	ND	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	2.5	
117-84-0	Di-n-octyl phthalate	ND	2.5	
205-99-2	Benzo(b)fluoranthene	ND	2.5	
207-08-9	Benzo(k)fluoranthene	ND	2.5	
50-32-8	Benzo(a)pyrene	ND	2.5	
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0003	Lab Sample ID:	AB62195
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	45	15 - 78
Phenol-d6 (SS2)	30	10 - 65
Nitrobenzene-d5 (SS3)	67	30 - 120
2-Fluorobiphenyl (SS4)	67	39 - 120
2,4,6-Tribromophenol (SS5)	74	10 - 126
p-Terphenyl-d14 (SS6)	73	60 - 133

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	2.5	
110-86-1	Pyridine	ND	2.5	
66-27-3	Methyl methanesulfonate	ND	2.5	
62-50-0	Ethyl methanesulfonate	ND	2.5	
108-95-2	Phenol	ND	2.5	
62-53-3	Aniline	ND	2.5	
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5	
95-57-8	2-Chlorophenol	ND	2.5	
541-73-1	1,3-Dichlorobenzene	ND	2.5	
106-46-7	1,4-Dichlorobenzene	ND	2.5	
100-51-6	Benzyl alcohol	ND	2.5	
95-50-1	1,2-Dichlorobenzene	ND	2.5	
95-48-7	2-Methylphenol	ND	2.5	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5	
98-86-2	Acetophenone	ND	2.5	
108-39-4/106-44-5	3&4-Methylphenol	ND	5.0	
621-64-7	N-nitroso-di-n-propylamine	ND	2.5	
67-72-1	Hexachloroethane	ND	2.5	
98-95-3	Nitrobenzene	ND	2.5	
78-59-1	Isophorone	ND	2.5	
88-75-5	2-Nitrophenol	ND	2.5	
105-67-9	2,4-dimethylphenol	ND	2.5	
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5	
65-85-0	Benzoic acid	ND	10	
120-83-2	2,4-Dichlorophenol	ND	2.5	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	
91-20-3	Naphthalene	ND	2.5	
87-65-0	2,6-Dichlorophenol	ND	2.5	
106-47-8	4-Chloroaniline	ND	2.5	
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	2.5	
131-11-3	Dimethyl phthalate	ND	2.5	

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	ND	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	ND	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	5.0	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	ND	2.5	
120-12-7	Anthracene	ND	2.5	
86-74-8	Carbazole	ND	2.5	
84-74-2	Di-n-butylphthalate	**3.3**	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	
206-44-0	Fluoranthene	ND	2.5	
92-87-5	Benzidine	ND	2.5	
129-00-0	Pyrene	ND	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.5	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	ND	2.5	
218-01-9	Chrysene	ND	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	2.5	
117-84-0	Di-n-octyl phthalate	ND	2.5	
205-99-2	Benzo(b)fluoranthene	ND	2.5	
207-08-9	Benzo(k)fluoranthene	ND	2.5	
50-32-8	Benzo(a)pyrene	ND	2.5	
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	45	15 - 78
Phenol-d6 (SS2)	30	10 - 65
Nitrobenzene-d5 (SS3)	67	30 - 120
2-Fluorobiphenyl (SS4)	67	39 - 120
2,4,6-Tribromophenol (SS5)	74	10 - 126
p-Terphenyl-d14 (SS6)	73	60 - 133

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
1,2,4,5-Tetrachlorobenzene	40	17.0	43	20 - 104
1,2,4-Trichlorobenzene	40	17.0	41	11 - 97
1,2-Dichlorobenzene	40	15.0	38	11 - 93
1,3-Dichlorobenzene	40	14.0	34	8.3 - 86
1,3-Dinitrobenzene	40	22.0	55	58 - 122
1,4-Dichlorobenzene	40	14.0	36	11 - 86
1,4-Naphthoquinone	40	19.0	48	19 - 133
1-Methylnaphthalene	40	20.0	51	30 - 111
2,2'-oxybis(1-chloropropane)	40	21.0	53	37 - 119
2,3,4,6-Tetrachlorophenol	40	21.0	53	52 - 128
2,4,5-Trichlorophenol	40	22.0	56	54 - 121
2,4,6-Trichlorophenol	40	22.0	54	56 - 120
2,4-Dichlorophenol	40	22.0	55	55 - 112
2,4-Dinitrophenol	40	22.0	56	15 - 134
2,4-Dinitrotoluene	40	22.0	55	59 - 130
2,4-dimethylphenol	40	22.0	55	38 - 117
2,6-Dichlorophenol	40	22.0	56	52 - 112
2,6-Dinitrotoluene	40	22.0	55	56 - 129
2-Chloronaphthalene	40	19.0	48	29 - 118
2-Chlorophenol	40	21.0	53	49 - 104
2-Methylnaphthalene	40	19.0	48	27 - 108
2-Methylphenol	40	21.0	53	41 - 109
2-Nitroaniline	40	22.0	54	48 - 150
2-Nitrophenol	40	23.0	56	53 - 117
3&4-Methylphenol	80	41.0	51	18 - 127
3,3'-Dichlorobenzidine	40	21.0	53	52 - 129
3-Methylcholanthrene	40	18.0	44	51 - 119
3-Nitroaniline	40	21.0	52	53 - 128
4,6-Dinitro-2-methylphenol	40	23.0	58	42 - 121
4-Bromophenyl-phenylether	40	20.0	50	51 - 119
4-Chloro-3-methylphenol	40	23.0	57	51 - 128
4-Chloroaniline	40	23.0	57	37 - 115
4-Chlorophenyl-phenylether	40	19.0	48	47 - 116
4-Nitroaniline	40	21.0	53	44 - 139
4-Nitrophenol	40	14.0	35	22 - 84
4-nitroquinoline-1-oxide	40	23.0	58	30 - 117
Acenaphthene	40	20.0	51	47 - 111
Acenaphthylene	40	20.0	51	50 - 112
Acetophenone	40	23.0	57	35 - 134
Aniline	40	22.0	55	33 - 102
Anthracene	40	22.0	55	58 - 124
Azobenzene	40	20.0	51	54 - 120
Benzidine	40	9.6	24	10 - 85
Benzo(a)anthracene	40	23.0	57	62 - 120
Benzo(a)pyrene	40	21.0	53	56 - 128
Benzo(b)fluoranthene	40	22.0	56	50 - 135
Benzo(g,h,i)perylene	40	24.0	60	53 - 126
Benzo(k)fluoranthene	40	22.0	55	55 - 126
Benzoic acid	40	15.0	37	17 - 77
Benzyl alcohol	40	21.0	53	31 - 121
Bis(2-Chloroethyl)ether	40	21.0	53	52 - 106
Bis(2-ethylhexyl)phthalate	40	24.0	59	63 - 130
Butylbenzylphthalate	40	23.0	57	60 - 133

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Carbazole	40	23.0	56	57 - 127
Chlorobenzilate	40	23.0	58	60 - 131
Chrysene	40	24.0	59	60 - 116
Di-n-butylphthalate	40	25.0	63	60 - 133
Di-n-octyl phthalate	40	23.0	57	48 - 133
Dibenz(a,h)anthracene	40	23.0	56	55 - 130
Dibenzofuran	40	20.0	50	51 - 110
Diethylphthalate	40	22.0	55	38 - 146
Dimethyl phthalate	40	22.0	55	58 - 121
Ethyl methanesulfonate	40	22.0	56	48 - 115
Fluoranthene	40	23.0	58	57 - 128
Fluorene	40	20.0	50	53 - 116
Hexachlorobenzene	40	21.0	53	55 - 116
Hexachlorobutadiene	40	13.0	34	10 - 92
Hexachlorocyclopentadiene	40	17.0	43	1.5 - 108
Hexachloroethane	40	12.0	30	11 - 83
Hexachloropropene	40	11.0	29	13 - 96
Indeno(1,2,3-cd)pyrene	40	23.0	57	54 - 129
Isodrin	40	21.0	53	53 - 124
Isophorone	40	23.0	58	53 - 128
Isosafrole	40	21.0	53	41 - 112
Methyl methanesulfonate	40	22.0	55	25 - 104
N-Nitrosodiphenylamine	40	21.0	53	56 - 115
N-nitroso-di-n-propylamine	40	23.0	57	47 - 126
N-nitrosodimethylamine	40	17.0	43	29 - 76
Naphthalene	40	19.0	48	31 - 104
Nitrobenzene	40	21.0	53	53 - 108
Pentachlorobenzene	40	18.0	45	44 - 110
Pentachloronitrobenzene	40	23.0	56	57 - 127
Pentachlorophenol	40	24.0	59	31 - 121
Phenacetin	40	23.0	57	51 - 142
Phenanthrene	40	22.0	55	56 - 119
Phenol	40	12.0	31	18 - 69
Pyrene	40	22.0	56	62 - 117
Pyridine	40	16.0	40	22 - 75
Safrole	40	20.0	51	49 - 114
bis(-2-Chloroethoxy)methane	40	23.0	57	56 - 112

Comments:

Samples in Batch: AB62193, AB62194, AB62195

PN 16060019

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061616-143337-0001

Lab: OEME
Lab Phone: 617-918-8490

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0001	SW-01	SVOC + pH (PEC)	6/16/2016	13:10	2	1 Liter Glass	4 C	
	0616-0001	SW-01	Total Cyanide	6/16/2016	13:10	1	Poly Bottle	NaOH	
	0616-0001	SW-01	Total Metals+Hg	6/16/2016	13:10	1	Poly Bottle	HNO3 pH<2	
	0616-0002	SW-02	SVOC + pH (PEC)	6/16/2016	13:20	2	1 Liter Glass	4 C	
	0616-0002	SW-02	Total Cyanide	6/16/2016	13:20	1	Poly Bottle	NaOH	
	0616-0002	SW-02	Total Metals+Hg	6/16/2016	13:20	1	Poly Bottle	HNO3 pH<2	
	0616-0003	SW-03	SVOC + pH (PEC)	6/16/2016	13:45	2	1 Liter Glass	4 C	
	0616-0003	SW-03	Total Cyanide	6/16/2016	13:45	1	Poly Bottle	NaOH	
	0616-0003	SW-03	Total Metals+Hg	6/16/2016	13:45	1	Poly Bottle	HNO3 pH<2	

16060019 $BNAW
16060019 pH-W
16060019 $METW_PE
16060019 CYANW
16060019 DMAW_CHEM

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	[signature] / Weston	6/16/16 1440	[signature] / Weston	6/16/16 1440	OK
ALL	[signature] / Weston	6/16/16 1615	[signature] CSAT	6/16/16 16:15	7°C

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United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

June 21, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16060020
Project: Norwood Dye Run-off
Analysis: Laboratory Blank Results
EPA Chemist: Inna Germansderfer

Date Samples Received by the Laboratory: 06/17/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Samples were prepared using separatory funnel liquid-liquid extraction. The samples were analyzed using high resolution capillary column chromatography and quadrapole mass spectrometry (GC/MS). The SOP for this method is based on the US EPA SW-846 Methods 3510C, 8270C, Method 625, and EIASOP-BNAGCMS7.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.21 11:49:45 -04'00'

16060020$BNAW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	2.5	
110-86-1	Pyridine	ND	2.5	
66-27-3	Methyl methanesulfonate	ND	2.5	
62-50-0	Ethyl methanesulfonate	ND	2.5	
108-95-2	Phenol	ND	2.5	
62-53-3	Aniline	ND	2.5	
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5	
95-57-8	2-Chlorophenol	ND	2.5	
541-73-1	1,3-Dichlorobenzene	ND	2.5	
106-46-7	1,4-Dichlorobenzene	ND	2.5	
100-51-6	Benzyl alcohol	ND	2.5	
95-50-1	1,2-Dichlorobenzene	ND	2.5	
95-48-7	2-Methylphenol	ND	2.5	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5	
98-86-2	Acetophenone	ND	2.5	
108-39-4/106-44-5	3&4-Methylphenol	ND	5.0	
621-64-7	N-nitroso-di-n-propylamine	ND	2.5	
67-72-1	Hexachloroethane	ND	2.5	
98-95-3	Nitrobenzene	ND	2.5	
78-59-1	Isophorone	ND	2.5	
88-75-5	2-Nitrophenol	ND	2.5	
105-67-9	2,4-dimethylphenol	ND	2.5	
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5	
65-85-0	Benzoic acid	ND	10	
120-83-2	2,4-Dichlorophenol	ND	2.5	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	
91-20-3	Naphthalene	ND	2.5	
87-65-0	2,6-Dichlorophenol	ND	2.5	
106-47-8	4-Chloroaniline	ND	2.5	
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	5.0	
131-11-3	Dimethyl phthalate	ND	2.5	

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	ND	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	ND	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	2.5	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	ND	2.5	
120-12-7	Anthracene	ND	2.5	
86-74-8	Carbazole	ND	2.5	
84-74-2	Di-n-butylphthalate	ND	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	
206-44-0	Fluoranthene	ND	2.5	
92-87-5	Benzidine	ND	2.5	
129-00-0	Pyrene	ND	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.5	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	ND	2.5	
218-01-9	Chrysene	ND	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	2.5	
117-84-0	Di-n-octyl phthalate	ND	2.5	
205-99-2	Benzo(b)fluoranthene	ND	2.5	
207-08-9	Benzo(k)fluoranthene	ND	2.5	
50-32-8	Benzo(a)pyrene	ND	2.5	
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	

Norwood Dye Run-off

Laboratory Blank Results

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	45	15 - 78
Phenol-d6 (SS2)	33	10 - 65
Nitrobenzene-d5 (SS3)	53	30 - 120
2-Fluorobiphenyl (SS4)	50	39 - 120
2,4,6-Tribromophenol (SS5)	55	10 - 126
p-Terphenyl-d14 (SS6)	61	60 - 133

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

62-75-9	N-nitrosodimethylamine	ND	2.5
110-86-1	Pyridine	ND	2.5
66-27-3	Methyl methanesulfonate	ND	2.5
62-50-0	Ethyl methanesulfonate	ND	2.5
108-95-2	Phenol	ND	2.5
62-53-3	Aniline	ND	2.5
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5
95-57-8	2-Chlorophenol	ND	2.5
541-73-1	1,3-Dichlorobenzene	ND	2.5
106-46-7	1,4-Dichlorobenzene	ND	2.5
100-51-6	Benzyl alcohol	ND	2.5
95-50-1	1,2-Dichlorobenzene	ND	2.5
95-48-7	2-Methylphenol	**3.0**	2.5
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5
98-86-2	Acetophenone	ND	2.5
108-39-4/106-44-5	3&4-Methylphenol	ND	5.0
621-64-7	N-nitroso-di-n-propylamine	ND	2.5
67-72-1	Hexachloroethane	ND	2.5
98-95-3	Nitrobenzene	ND	2.5
78-59-1	Isophorone	ND	2.5
88-75-5	2-Nitrophenol	ND	2.5
105-67-9	2,4-dimethylphenol	ND	2.5
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5
65-85-0	Benzoic acid	ND	10
120-83-2	2,4-Dichlorophenol	ND	2.5
120-82-1	1,2,4-Trichlorobenzene	ND	2.5
91-20-3	Naphthalene	ND	2.5
87-65-0	2,6-Dichlorophenol	ND	2.5
106-47-8	4-Chloroaniline	ND	2.5

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0004	Lab Sample ID:	AB62196
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	2.5	
131-11-3	Dimethyl phthalate	**14**	2.5	
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	ND	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	ND	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	2.5	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	**3.2**	2.5	
120-12-7	Anthracene	ND	2.5	
86-74-8	Carbazole	ND	2.5	
84-74-2	Di-n-butylphthalate	**3.2**	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0004	Lab Sample ID:	AB62196
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
206-44-0	Fluoranthene	ND	2.5	
92-87-5	Benzidine	ND	2.5	
129-00-0	Pyrene	ND	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.5	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	ND	2.5	
218-01-9	Chrysene	ND	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	**2.0**	2.5	L
117-84-0	Di-n-octyl phthalate	ND	2.5	
205-99-2	Benzo(b)fluoranthene	ND	2.5	
207-08-9	Benzo(k)fluoranthene	ND	2.5	
50-32-8	Benzo(a)pyrene	ND	2.5	
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	41	15 - 78
Phenol-d6 (SS2)	27	10 - 65
Nitrobenzene-d5 (SS3)	69	30 - 120
2-Fluorobiphenyl (SS4)	67	39 - 120
2,4,6-Tribromophenol (SS5)	76	10 - 126
p-Terphenyl-d14 (SS6)	73	60 - 133

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0005	Lab Sample ID:	AB62197
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
62-75-9	N-nitrosodimethylamine	ND	2.5	
110-86-1	Pyridine	ND	2.5	
66-27-3	Methyl methanesulfonate	ND	2.5	
62-50-0	Ethyl methanesulfonate	ND	2.5	
108-95-2	Phenol	ND	2.5	
62-53-3	Aniline	ND	2.5	
111-44-4	Bis(2-Chloroethyl)ether	ND	2.5	
95-57-8	2-Chlorophenol	ND	2.5	
541-73-1	1,3-Dichlorobenzene	ND	2.5	
106-46-7	1,4-Dichlorobenzene	ND	2.5	
100-51-6	Benzyl alcohol	ND	2.5	
95-50-1	1,2-Dichlorobenzene	ND	2.5	
95-48-7	2-Methylphenol	ND	2.5	
108-60-1	2,2'-oxybis(1-chloropropane)	ND	2.5	
98-86-2	Acetophenone	ND	2.5	
108-39-4/106-44-5	3&4-Methylphenol	ND	5.0	
621-64-7	N-nitroso-di-n-propylamine	ND	2.5	
67-72-1	Hexachloroethane	ND	2.5	
98-95-3	Nitrobenzene	ND	2.5	
78-59-1	Isophorone	ND	2.5	
88-75-5	2-Nitrophenol	ND	2.5	
105-67-9	2,4-dimethylphenol	ND	2.5	
111-91-1	bis(-2-Chloroethoxy)methane	ND	2.5	
65-85-0	Benzoic acid	ND	10	
120-83-2	2,4-Dichlorophenol	ND	2.5	
120-82-1	1,2,4-Trichlorobenzene	ND	2.5	
91-20-3	Naphthalene	ND	2.5	
87-65-0	2,6-Dichlorophenol	ND	2.5	
106-47-8	4-Chloroaniline	ND	2.5	
1888-71-7	Hexachloropropene	ND	2.5	
87-68-3	Hexachlorobutadiene	ND	2.5	
59-50-7	4-Chloro-3-methylphenol	ND	2.5	
120-58-1	Isosafrole	ND	2.5	
91-57-6	2-Methylnaphthalene	ND	2.5	
90-12-0	1-Methylnaphthalene	ND	2.5	
77-47-4	Hexachlorocyclopentadiene	ND	10	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.5	
88-06-2	2,4,6-Trichlorophenol	ND	2.5	
95-95-4	2,4,5-Trichlorophenol	ND	2.5	
94-59-7	Safrole	ND	2.5	
91-58-7	2-Chloronaphthalene	ND	2.5	
88-74-4	2-Nitroaniline	ND	2.5	
130-15-4	1,4-Naphthoquinone	ND	2.5	
131-11-3	Dimethyl phthalate	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0005	Lab Sample ID:	AB62197
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
99-65-0	1,3-Dinitrobenzene	ND	2.5	
606-20-2	2,6-Dinitrotoluene	ND	2.5	
208-96-8	Acenaphthylene	ND	2.5	
99-09-2	3-Nitroaniline	ND	2.5	
83-32-9	Acenaphthene	ND	2.5	
51-28-5	2,4-Dinitrophenol	ND	10	
100-02-7	4-Nitrophenol	ND	2.5	
608-93-5	Pentachlorobenzene	ND	2.5	
132-64-9	Dibenzofuran	ND	2.5	
121-14-2	2,4-Dinitrotoluene	ND	2.5	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2.5	
84-66-2	Diethylphthalate	ND	2.5	
86-73-7	Fluorene	ND	2.5	
7005-72-3	4-Chlorophenyl-phenylether	ND	2.5	
100-01-6	4-Nitroaniline	ND	2.5	
534-52-1	4,6-Dinitro-2-methylphenol	ND	10	
86-30-6	N-Nitrosodiphenylamine	ND	2.5	
103-33-3	Azobenzene	ND	2.5	
62-44-2	Phenacetin	ND	2.5	
101-55-3	4-Bromophenyl-phenylether	ND	2.5	
118-74-1	Hexachlorobenzene	ND	2.5	
87-86-5	Pentachlorophenol	ND	10	
82-68-8	Pentachloronitrobenzene	ND	2.5	
85-01-8	Phenanthrene	ND	2.5	
120-12-7	Anthracene	ND	2.5	
86-74-8	Carbazole	ND	2.5	
84-74-2	Di-n-butylphthalate	**3.6**	2.5	
56-57-5	4-nitroquinoline-1-oxide	ND	10	
465-73-6	Isodrin	ND	2.5	
206-44-0	Fluoranthene	ND	2.5	
92-87-5	Benzidine	ND	2.2	
129-00-0	Pyrene	ND	2.5	
510-15-6	Chlorobenzilate	ND	2.5	
85-68-7	Butylbenzylphthalate	ND	2.2	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	
56-55-3	Benzo(a)anthracene	ND	2.5	
218-01-9	Chrysene	ND	2.5	
117-81-7	Bis(2-ethylhexyl)phthalate	ND	2.2	
117-84-0	Di-n-octyl phthalate	ND	2.2	
205-99-2	Benzo(b)fluoranthene	ND	2.5	
207-08-9	Benzo(k)fluoranthene	ND	2.5	
50-32-8	Benzo(a)pyrene	ND	2.5	
56-49-5	3-Methylcholanthrene	ND	2.5	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.5	

Norwood Dye Run-off

BNAs in Water

Client Sample ID:	0616-0005	Lab Sample ID:	AB62197
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	1000 mL
Date of Analysis:	6/20/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
53-70-3	Dibenz(a,h)anthracene	ND	2.5	
191-24-2	Benzo(g,h,i)perylene	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2-Fluorophenol (SS1)	44	15 - 78
Phenol-d6 (SS2)	31	10 - 65
Nitrobenzene-d5 (SS3)	70	30 - 120
2-Fluorobiphenyl (SS4)	70	39 - 120
2,4,6-Tribromophenol (SS5)	82	10 - 126
p-Terphenyl-d14 (SS6)	82	60 - 133

Comments: Benzoic acid, hexachlorocyclopentadiene, 2,4,dinitrophenol, 4,6,dinitro-2-methylphenol, pentachlorophenol and 4-nitroquinolin-1-oxide were calibrated using linear regression ; reporting limits for these analytes was raised to 10 ppb.

Norwood Dye Run-off

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB62197

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
1,2,4,5-Tetrachlorobenzene	40.0	ND	30.0	75	50 - 104
1,2,4-Trichlorobenzene	40.0	ND	28.0	70	31 - 106
1,2-Dichlorobenzene	40.0	ND	27.0	67	26 - 103
1,3-Dichlorobenzene	40.0	ND	26.0	64	20 - 100
1,3-Dinitrobenzene	40.0	ND	37.0	92	31 - 152
1,4-Dichlorobenzene	40.0	ND	26.0	65	21 - 100
1,4-Naphthoquinone	40.0	ND	33.0	82	52 - 110
1-Methylnaphthalene	40.0	ND	33.0	83	54 - 110
2,2'-oxybis(1-chloropropane)	40.0	ND	33.0	83	43 - 124
2,3,4,6-Tetrachlorophenol	40.0	ND	38.0	95	63 - 127
2,4,5-Trichlorophenol	40.0	ND	38.0	95	62 - 125
2,4,6-Trichlorophenol	40.0	ND	34.0	86	67 - 119
2,4-Dichlorophenol	40.0	ND	34.0	84	64 - 113
2,4-Dinitrophenol	40.0	ND	22.0	56	28 - 139
2,4-Dinitrotoluene	40.0	ND	37.0	93	64 - 131
2,4-dimethylphenol	40.0	ND	33.0	83	21 - 123
2,6-Dichlorophenol	40.0	ND	34.0	85	63 - 111
2,6-Dinitrotoluene	40.0	ND	37.0	92	65 - 127
2-Chloronaphthalene	40.0	ND	32.0	81	50 - 120
2-Chlorophenol	40.0	ND	31.0	78	57 - 105
2-Methylnaphthalene	40.0	ND	31.0	79	53 - 107
2-Methylphenol	40.0	ND	29.0	72	47 - 105
2-Nitroaniline	40.0	ND	31.0	78	58 - 144
2-Nitrophenol	40.0	ND	34.0	84	59 - 124
3&4-Methylphenol	80.0	ND	54.0	67	13 - 144
3,3'-Dichlorobenzidine	40.0	ND	10.0	26	5.0 - 163
3-Methylcholanthrene	40.0	ND	29.0	73	23 - 166
3-Nitroaniline	40.0	ND	30.0	75	45 - 129
4,6-Dinitro-2-methylphenol	40.0	ND	27.0	66	45 - 128
4-Bromophenyl-phenylether	40.0	ND	35.0	88	63 - 121
4-Chloro-3-methylphenol	40.0	ND	34.0	85	65 - 119
4-Chloroaniline	40.0	ND	27.0	68	7.8 - 122
4-Chlorophenyl-phenylether	40.0	ND	35.0	87	61 - 116
4-Nitroaniline	40.0	ND	25.0	64	41 - 139
4-Nitrophenol	40.0	ND	19.0	49	5.8 - 109
4-nitroquinoline-1-oxide	40.0	ND	20.0	50	38 - 108
Acenaphthene	40.0	ND	34.0	85	61 - 113
Acenaphthylene	40.0	ND	34.0	85	62 - 113
Acetophenone	40.0	ND	35.0	88	61 - 113
Aniline	40.0	ND	26.0	64	17 - 109
Anthracene	40.0	ND	36.0	90	68 - 121
Azobenzene	40.0	ND	34.0	86	60 - 123
Benzidine	40.0	ND	ND	ND	10 - 80
Benzo(a)anthracene	40.0	ND	37.0	92	69 - 119
Benzo(a)pyrene	40.0	ND	37.0	93	57 - 132
Benzo(b)fluoranthene	40.0	ND	44.0	110	55 - 139
Benzo(g,h,i)perylene	40.0	ND	22.0	56	60 - 130

Norwood Dye Run-off

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB62197

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Benzo(k)fluoranthene	40.0	ND	42.0	106	62 - 126
Benzoic acid	40.0	ND	19.0	48	3.7 - 86
Benzyl alcohol	40.0	ND	35.0	88	23 - 133
Bis(2-Chloroethyl)ether	40.0	ND	34.0	86	57 - 111
Bis(2-ethylhexyl)phthalate	40.0	ND	37.0	93	37 - 155
Butylbenzylphthalate	40.0	ND	37.0	93	64 - 133
Carbazole	40.0	ND	36.0	90	62 - 128
Chlorobenzilate	40.0	ND	37.0	93	55 - 146
Chrysene	40.0	ND	38.0	95	71 - 110
Di-n-butylphthalate	40.0	3.6	42.0	97	68 - 135
Di-n-octyl phthalate	40.0	ND	54.0	135	35 - 160
Dibenz(a,h)anthracene	40.0	ND	23.0	57	58 - 137
Dibenzofuran	40.0	ND	35.0	87	62 - 113
Diethylphthalate	40.0	ND	36.0	91	56 - 131
Dimethyl phthalate	40.0	ND	38.0	95	64 - 121
Ethyl methanesulfonate	40.0	ND	35.0	88	56 - 117
Fluoranthene	40.0	ND	39.0	97	64 - 128
Fluorene	40.0	ND	36.0	89	63 - 119
Hexachlorobenzene	40.0	ND	36.0	90	62 - 118
Hexachlorobutadiene	40.0	ND	23.0	57	9.5 - 107
Hexachlorocyclopentadiene	40.0	ND	17.0	44	11 - 117
Hexachloroethane	40.0	ND	22.0	55	6.9 - 101
Hexachloropropene	40.0	ND	19.0	49	8.1 - 110
Indeno(1,2,3-cd)pyrene	40.0	ND	23.0	58	62 - 129
Isodrin	40.0	ND	36.0	89	63 - 119
Isophorone	40.0	ND	36.0	91	60 - 130
Isosafrole	40.0	ND	34.0	85	59 - 112
Methyl methanesulfonate	40.0	ND	32.0	80	37 - 98
N-Nitrosodiphenylamine	40.0	ND	32.0	79	58 - 117
N-nitroso-di-n-propylamine	40.0	ND	36.0	89	58 - 124
N-nitrosodimethylamine	40.0	ND	24.0	60	35 - 72
Naphthalene	40.0	ND	32.0	80	47 - 110
Nitrobenzene	40.0	ND	35.0	88	58 - 115
Pentachlorobenzene	40.0	ND	33.0	82	61 - 112
Pentachloronitrobenzene	40.0	ND	38.0	94	65 - 127
Pentachlorophenol	40.0	ND	38.0	96	11 - 167
Phenacetin	40.0	ND	37.0	93	55 - 143
Phenanthrene	40.0	ND	38.0	94	63 - 122
Phenol	40.0	ND	14.0	36	20 - 64
Pyrene	40.0	ND	35.0	87	68 - 117
Pyridine	40.0	ND	15.0	36	5.3 - 85
Safrole	40.0	ND	32.0	81	56 - 117
bis(-2-Chloroethoxy)methane	40.0	ND	35.0	88	64 - 114

Norwood Dye Run-off

Laboratory Duplicate Results

Sample ID: AB62196

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
1,2,4,5-Tetrachlorobenzene	ND	ND	NC	50
1,2,4-Trichlorobenzene	ND	ND	NC	50
1,2-Dichlorobenzene	ND	ND	NC	50
1,3-Dichlorobenzene	ND	ND	NC	50
1,3-Dinitrobenzene	ND	ND	NC	50
1,4-Dichlorobenzene	ND	ND	NC	50
1,4-Naphthoquinone	ND	ND	NC	50
1-Methylnaphthalene	ND	ND	NC	50
2,2'-oxybis(1-chloropropane)	ND	ND	NC	50
2,3,4,6-Tetrachlorophenol	ND	ND	NC	50
2,4,5-Trichlorophenol	ND	ND	NC	50
2,4,6-Trichlorophenol	ND	ND	NC	50
2,4-Dichlorophenol	ND	ND	NC	50
2,4-Dinitrophenol	ND	ND	NC	50
2,4-Dinitrotoluene	ND	ND	NC	50
2,4-dimethylphenol	ND	ND	NC	50
2,6-Dichlorophenol	ND	ND	NC	50
2,6-Dinitrotoluene	ND	ND	NC	50
2-Chloronaphthalene	ND	ND	NC	50
2-Chlorophenol	ND	ND	NC	50
2-Methylnaphthalene	ND	ND	NC	50
2-Methylphenol	3.0	2.6	14.3	50
2-Nitroaniline	ND	ND	NC	50
2-Nitrophenol	ND	ND	NC	50
3&4-Methylphenol	ND	ND	NC	50
3,3'-Dichlorobenzidine	ND	ND	NC	50
3-Methylcholanthrene	ND	ND	NC	50
3-Nitroaniline	ND	ND	NC	50
4,6-Dinitro-2-methylphenol	ND	ND	NC	50
4-Bromophenyl-phenylether	ND	ND	NC	50
4-Chloro-3-methylphenol	ND	ND	NC	50
4-Chloroaniline	ND	ND	NC	50
4-Chlorophenyl-phenylether	ND	ND	NC	50
4-Nitroaniline	ND	ND	NC	50
4-Nitrophenol	ND	ND	NC	50
4-nitroquinoline-1-oxide	ND	ND	NC	50
Acenaphthene	ND	ND	NC	50
Acenaphthylene	ND	ND	NC	50
Acetophenone	ND	ND	NC	50
Aniline	ND	ND	NC	50
Anthracene	ND	ND	NC	50
Azobenzene	ND	ND	NC	50
Benzidine	ND	ND	NC	50
Benzo(a)anthracene	ND	ND	NC	50
Benzo(a)pyrene	ND	ND	NC	50
Benzo(b)fluoranthene	ND	ND	NC	50
Benzo(g,h,i)perylene	ND	ND	NC	50
Benzo(k)fluoranthene	ND	ND	NC	50
Benzoic acid	ND	ND	NC	50
Benzyl alcohol	ND	ND	NC	50

Norwood Dye Run-off

Laboratory Duplicate Results

Sample ID: AB62196

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Bis(2-Chloroethyl)ether	ND	ND	NC	50
Bis(2-ethylhexyl)phthalate	2.0	3.2	46.2	50
Butylbenzylphthalate	ND	ND	NC	50
Carbazole	ND	ND	NC	50
Chlorobenzilate	ND	ND	NC	50
Chrysene	ND	ND	NC	50
Di-n-butylphthalate	3.2	2.8	13.3	50
Di-n-octyl phthalate	ND	ND	NC	50
Dibenz(a,h)anthracene	ND	ND	NC	50
Dibenzofuran	ND	ND	NC	50
Diethylphthalate	ND	ND	NC	50
Dimethyl phthalate	14.0	15.9	14.1	50
Ethyl methanesulfonate	ND	ND	NC	50
Fluoranthene	ND	ND	NC	50
Fluorene	ND	ND	NC	50
Hexachlorobenzene	ND	ND	NC	50
Hexachlorobutadiene	ND	ND	NC	50
Hexachlorocyclopentadiene	ND	ND	NC	50
Hexachloroethane	ND	ND	NC	50
Hexachloropropene	ND	ND	NC	50
Indeno(1,2,3-cd)pyrene	ND	ND	NC	50
Isodrin	ND	ND	NC	50
Isophorone	ND	ND	NC	50
Isosafrole	ND	ND	NC	50
Methyl methanesulfonate	ND	ND	NC	50
N-Nitrosodiphenylamine	ND	ND	NC	50
N-nitroso-di-n-propylamine	ND	ND	NC	50
N-nitrosodimethylamine	ND	ND	NC	50
Naphthalene	ND	ND	NC	50
Nitrobenzene	ND	ND	NC	50
Pentachlorobenzene	ND	ND	NC	50
Pentachloronitrobenzene	ND	ND	NC	50
Pentachlorophenol	ND	ND	NC	50
Phenacetin	ND	ND	NC	50
Phenanthrene	3.2	3.4	6.1	50
Phenol	ND	ND	NC	50
Pyrene	ND	ND	NC	50
Pyridine	ND	ND	NC	50
Safrole	ND	ND	NC	50
bis(-2-Chloroethoxy)methane	ND	ND	NC	50

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
1,2,4,5-Tetrachlorobenzene	40	17.0	43	20 - 104
1,2,4-Trichlorobenzene	40	17.0	41	11 - 97
1,2-Dichlorobenzene	40	15.0	38	11 - 93
1,3-Dichlorobenzene	40	14.0	34	8.3 - 86
1,3-Dinitrobenzene	40	22.0	55	58 - 122
1,4-Dichlorobenzene	40	14.0	36	11 - 86
1,4-Naphthoquinone	40	19.0	48	19 - 133
1-Methylnaphthalene	40	20.0	51	30 - 111
2,2'-oxybis(1-chloropropane)	40	21.0	53	37 - 119
2,3,4,6-Tetrachlorophenol	40	21.0	53	52 - 128
2,4,5-Trichlorophenol	40	22.0	56	54 - 121
2,4,6-Trichlorophenol	40	22.0	54	56 - 120
2,4-Dichlorophenol	40	22.0	55	55 - 112
2,4-Dinitrophenol	40	22.0	56	15 - 134
2,4-Dinitrotoluene	40	22.0	55	59 - 130
2,4-dimethylphenol	40	22.0	55	38 - 117
2,6-Dichlorophenol	40	22.0	56	52 - 112
2,6-Dinitrotoluene	40	22.0	55	56 - 129
2-Chloronaphthalene	40	19.0	48	29 - 118
2-Chlorophenol	40	21.0	53	49 - 104
2-Methylnaphthalene	40	19.0	48	27 - 108
2-Methylphenol	40	21.0	53	41 - 109
2-Nitroaniline	40	22.0	54	48 - 150
2-Nitrophenol	40	23.0	56	53 - 117
3&4-Methylphenol	80	41.0	51	18 - 127
3,3'-Dichlorobenzidine	40	21.0	53	52 - 129
3-Methylcholanthrene	40	18.0	44	51 - 119
3-Nitroaniline	40	21.0	52	53 - 128
4,6-Dinitro-2-methylphenol	40	23.0	58	42 - 121
4-Bromophenyl-phenylether	40	20.0	50	51 - 119
4-Chloro-3-methylphenol	40	23.0	57	51 - 128
4-Chloroaniline	40	23.0	57	37 - 115
4-Chlorophenyl-phenylether	40	19.0	48	47 - 116
4-Nitroaniline	40	21.0	53	44 - 139
4-Nitrophenol	40	14.0	35	22 - 84
4-nitroquinoline-1-oxide	40	23.0	58	30 - 117
Acenaphthene	40	20.0	51	47 - 111
Acenaphthylene	40	20.0	51	50 - 112
Acetophenone	40	23.0	57	35 - 134
Aniline	40	22.0	55	33 - 102
Anthracene	40	22.0	55	58 - 124
Azobenzene	40	20.0	51	54 - 120
Benzidine	40	9.6	24	10 - 85
Benzo(a)anthracene	40	23.0	57	62 - 120
Benzo(a)pyrene	40	21.0	53	56 - 128
Benzo(b)fluoranthene	40	22.0	56	50 - 135
Benzo(g,h,i)perylene	40	24.0	60	53 - 126
Benzo(k)fluoranthene	40	22.0	55	55 - 126
Benzoic acid	40	15.0	37	17 - 77
Benzyl alcohol	40	21.0	53	31 - 121
Bis(2-Chloroethyl)ether	40	21.0	53	52 - 106
Bis(2-ethylhexyl)phthalate	40	24.0	59	63 - 130
Butylbenzylphthalate	40	23.0	57	60 - 133

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Carbazole	40	23.0	56	57 - 127
Chlorobenzilate	40	23.0	58	60 - 131
Chrysene	40	24.0	59	60 - 116
Di-n-butylphthalate	40	25.0	63	60 - 133
Di-n-octyl phthalate	40	23.0	57	48 - 133
Dibenz(a,h)anthracene	40	23.0	56	55 - 130
Dibenzofuran	40	20.0	50	51 - 110
Diethylphthalate	40	22.0	55	38 - 146
Dimethyl phthalate	40	22.0	55	58 - 121
Ethyl methanesulfonate	40	22.0	56	48 - 115
Fluoranthene	40	23.0	58	57 - 128
Fluorene	40	20.0	50	53 - 116
Hexachlorobenzene	40	21.0	53	55 - 116
Hexachlorobutadiene	40	13.0	34	10 - 92
Hexachlorocyclopentadiene	40	17.0	43	1.5 - 108
Hexachloroethane	40	12.0	30	11 - 83
Hexachloropropene	40	11.0	29	13 - 96
Indeno(1,2,3-cd)pyrene	40	23.0	57	54 - 129
Isodrin	40	21.0	53	53 - 124
Isophorone	40	23.0	58	53 - 128
Isosafrole	40	21.0	53	41 - 112
Methyl methanesulfonate	40	22.0	55	25 - 104
N-Nitrosodiphenylamine	40	21.0	53	56 - 115
N-nitroso-di-n-propylamine	40	23.0	57	47 - 126
N-nitrosodimethylamine	40	17.0	43	29 - 76
Naphthalene	40	19.0	48	31 - 104
Nitrobenzene	40	21.0	53	53 - 108
Pentachlorobenzene	40	18.0	45	44 - 110
Pentachloronitrobenzene	40	23.0	56	57 - 127
Pentachlorophenol	40	24.0	59	31 - 121
Phenacetin	40	23.0	57	51 - 142
Phenanthrene	40	22.0	55	56 - 119
Phenol	40	12.0	31	18 - 69
Pyrene	40	22.0	56	62 - 117
Pyridine	40	16.0	40	22 - 75
Safrole	40	20.0	51	49 - 114
bis(-2-Chloroethoxy)methane	40	23.0	57	56 - 112

Comments:

Samples in Batch: AB62196, AB62197

PN: 160600 20

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061716-064855-0002

Lab: OEME
Lab Phone: 617-918-8490

16060020 $BNAW
16060020 $METW_PE
16060020 DMAW_CHEM
16060020 CYANW

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0004	SW-04	SVOC	6/16/2016	14:10	2	1 Liter Glass	4 C	
	0616-0004	SW-04	Total Metals+Hg	6/16/2016	14:10	1	Poly Bottle	HNO3 pH<2	
	0616-0004	SW-04	Total Cyanide	6/16/2016	14:10	1	Poly Bottle	NaOH	
	0616-0005	SW-05	SVOC	6/16/2016	14:20	2	1 Liter Glass	4 C	
	0616-0005	SW-05	Total Metals+Hg	6/16/2016	14:20	1	Poly Bottle	HNO3 pH<2	
	0616-0005	SW-05	Total Cyanide	6/16/2016	14:20	1	Poly Bottle	NaOH	

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	6/17/16 0741	ESAT	6-17-16 07:41	

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

June 23, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16060019
Project: Norwood Dye Run-off
Analysis: Total Recoverable Metals in Water by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/16/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

The sample preparation and analysis SOP's are based on Methods 3010A or 3005A and 6010B as stated in "Test Methods for Evaluating Solid Waste, 3rd ed., Final Update III, 7/92 and 12/96."

The samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.23 07:54:41 -04'00'

16060019$METW_PE

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

Total Recoverable Metals in Water by ICP

Client Sample ID:	0616-0001	Lab Sample ID:	AB62193
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**1200**	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**37**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**26000**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**56**	20	
7440-50-8	Copper	**25**	20	
7439-89-6	Iron	**2000**	40	
7439-95-4	Magnesium	**1600**	100	
7439-96-5	Manganese	**85**	20	
7440-02-0	Nickel	**32**	20	
7439-92-1	Lead	**100**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**390**	20	

Norwood Dye Run-off

Total Recoverable Metals in Water by ICP

Client Sample ID:	0616-0002	Lab Sample ID:	AB62194
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**6600**	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**140**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**98000**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**59**	20	
7440-50-8	Copper	**100**	20	
7439-89-6	Iron	**12000**	40	
7439-95-4	Magnesium	**4500**	100	
7439-96-5	Manganese	**320**	20	
7440-02-0	Nickel	**28**	20	
7439-92-1	Lead	**220**	20	
7440-36-0	Antimony	**33**	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	**39**	20	
7440-66-6	Zinc	**1700**	20	

Norwood Dye Run-off

Total Recoverable Metals in Water by ICP

Client Sample ID:	0616-0003	Lab Sample ID:	AB62195
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**60**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**15000**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**760**	40	
7439-95-4	Magnesium	**3500**	100	
7439-96-5	Manganese	**120**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Norwood Dye Run-off

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Norwood Dye Run-off

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB62193

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aluminum	500	1200	1660	92	75 - 125
Antimony	500	ND	532	106	75 - 125
Arsenic	500	ND	532	106	75 - 125
Barium	500	37.0	515	96	75 - 125
Beryllium	200	ND	201	100	75 - 125
Cadmium	250	ND	247	99	75 - 125
Chromium	500	56.0	562	101	75 - 125
Cobalt	500	ND	511	102	75 - 125
Copper	500	25.0	538	103	75 - 125
Iron	500	2000	2440	R	75 - 125
Lead	500	100	596	99	75 - 125
Manganese	500	85.0	585	100	75 - 125
Nickel	500	32.0	530	100	75 - 125
Selenium	500	ND	506	101	75 - 125
Silver	100	ND	98.0	98	75 - 125
Thallium	500	ND	474	95	75 - 125
Vanadium	500	ND	516	103	75 - 125
Zinc	500	390	904	103	75 - 125

Norwood Dye Run-off

Laboratory Duplicate Results

Sample ID: AB62194

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aluminum	6600	6600	0	20
Antimony	33.0	34	3.0	20
Arsenic	ND	ND	NC	20
Barium	140	140	0	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Calcium	98000	98000	0	20
Chromium	59.0	60	1.7	20
Cobalt	ND	ND	NC	20
Copper	100	110	9.5	20
Iron	12000	12000	0	20
Lead	220	220	0	20
Magnesium	4500	4500	0	20
Manganese	320	330	3.1	20
Nickel	28.0	29	3.5	20
Selenium	ND	ND	NC	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Vanadium	39.0	39	0	20
Zinc	1700	1700	0	20

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	500	513	103	85 - 115
Antimony	500	527	105	85 - 115
Arsenic	500	519	104	85 - 115
Barium	500	492	98	85 - 115
Beryllium	200	198	99	85 - 115
Cadmium	250	248	99	85 - 115
Calcium	5000	5220	104	85 - 115
Chromium	500	517	103	85 - 115
Cobalt	500	511	102	85 - 115
Copper	500	506	101	85 - 115
Iron	500	524	105	85 - 115
Lead	500	495	99	85 - 115
Magnesium	5000	5300	106	85 - 115
Manganese	500	516	103	85 - 115
Nickel	500	509	102	85 - 115
Selenium	500	506	101	85 - 115
Silver	100	100.0	100	85 - 115
Thallium	500	496	99	85 - 115
Vanadium	500	513	103	85 - 115
Zinc	500	502	100	85 - 115

Comments:

Samples in Batch: AB62193, AB62194, AB62195

PN 16060019

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061616-143337-0001

Lab: OEME
Lab Phone: 617-918-8490

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0001	SW-01	SVOC + pH (PEC)	6/16/2016	13:10	2	1 Liter Glass	4 C	
	0616-0001	SW-01	Total Cyanide	6/16/2016	13:10	1	Poly Bottle	NaOH	
	0616-0001	SW-01	Total Metals+Hg	6/16/2016	13:10	1	Poly Bottle	HNO3 pH<2	
	0616-0002	SW-02	SVOC + pH (PEC)	6/16/2016	13:20	2	1 Liter Glass	4 C	
	0616-0002	SW-02	Total Cyanide	6/16/2016	13:20	1	Poly Bottle	NaOH	
	0616-0002	SW-02	Total Metals+Hg	6/16/2016	13:20	1	Poly Bottle	HNO3 pH<2	
	0616-0003	SW-03	SVOC + pH (PEC)	6/16/2016	13:45	2	1 Liter Glass	4 C	
	0616-0003	SW-03	Total Cyanide	6/16/2016	13:45	1	Poly Bottle	NaOH	
	0616-0003	SW-03	Total Metals+Hg	6/16/2016	13:45	1	Poly Bottle	HNO3 pH<2	

16060019 $BNAW
16060019 pH-W
16060019 $METW_PE
16060019 CYANW
16060019 DMAW_CHEM

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	[signature] / Weston	6/16/16 1440	[signature] / Weston	6/16/16 1440	OK
ALL	[signature] / Weston	6/16/16 1615	[signature] CSAT	6/16/16 16:15	7°C

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

June 23, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16060020
Project: Norwood Dye Run-off
Analysis: Total Recoverable Metals in Water by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/17/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

The sample preparation and analysis SOP's are based on Methods 3010A or 3005A and 6010B as stated in "Test Methods for Evaluating Solid Waste, 3rd ed., Final Update III, 7/92 and 12/96."

The samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.23 07:56:58 -04'00'

16060020$METW_PE

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

Total Recoverable Metals in Water by ICP

Client Sample ID:	0616-0004	Lab Sample ID:	AB62196
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**1100**	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**97**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**23000**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**3000**	40	
7439-95-4	Magnesium	**4100**	100	
7439-96-5	Manganese	**370**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	**23**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**51**	20	

Norwood Dye Run-off

Total Recoverable Metals in Water by ICP

Client Sample ID:	0616-0005	Lab Sample ID:	AB62197
Date of Collection:	6/16/2016	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**65**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**17000**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**710**	40	
7439-95-4	Magnesium	**3700**	100	
7439-96-5	Manganese	**85**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Norwood Dye Run-off

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	6/20/2016	Amount Prepared:	50 mL
Date of Analysis:	6/21/2016	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Norwood Dye Run-off

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB62196

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aluminum	500	1100	1650	110	75 - 125
Antimony	500	ND	520	104	75 - 125
Arsenic	500	ND	523	105	75 - 125
Barium	500	97.0	577	96	75 - 125
Beryllium	200	ND	203	102	75 - 125
Cadmium	250	ND	248	99	75 - 125
Chromium	500	ND	520	104	75 - 125
Cobalt	500	ND	509	102	75 - 125
Copper	500	ND	541	108	75 - 125
Iron	500	3000	3510	R	75 - 125
Lead	500	23.0	506	97	75 - 125
Manganese	500	370	888	104	75 - 125
Nickel	500	ND	511	102	75 - 125
Selenium	500	ND	506	101	75 - 125
Silver	100	ND	100.0	100	75 - 125
Thallium	500	ND	475	95	75 - 125
Vanadium	500	ND	513	103	75 - 125
Zinc	500	51.0	567	103	75 - 125

Norwood Dye Run-off

Laboratory Duplicate Results

Sample ID: AB62197

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aluminum	ND	ND	NC	20
Antimony	ND	ND	NC	20
Arsenic	ND	ND	NC	20
Barium	65.0	66	1.5	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Calcium	17000	17000	0	20
Chromium	ND	ND	NC	20
Cobalt	ND	ND	NC	20
Copper	ND	ND	NC	20
Iron	710	710	0	20
Lead	ND	ND	NC	20
Magnesium	3700	3800	2.7	20
Manganese	85.0	86	1.2	20
Nickel	ND	ND	NC	20
Selenium	ND	ND	NC	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Vanadium	ND	ND	NC	20
Zinc	ND	ND	NC	20

Norwood Dye Run-off

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	500	513	103	85 - 115
Antimony	500	527	105	85 - 115
Arsenic	500	519	104	85 - 115
Barium	500	492	98	85 - 115
Beryllium	200	198	99	85 - 115
Cadmium	250	248	99	85 - 115
Calcium	5000	5220	104	85 - 115
Chromium	500	517	103	85 - 115
Cobalt	500	511	102	85 - 115
Copper	500	506	101	85 - 115
Iron	500	524	105	85 - 115
Lead	500	495	99	85 - 115
Magnesium	5000	5300	106	85 - 115
Manganese	500	516	103	85 - 115
Nickel	500	509	102	85 - 115
Selenium	500	506	101	85 - 115
Silver	100	100	100	85 - 115
Thallium	500	496	99	85 - 115
Vanadium	500	513	103	85 - 115
Zinc	500	502	100	85 - 115

Comments:

Samples in Batch: AB62196, AB62197

PN: 160600 20

Page 9 of 9

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061716-064855-0002

Lab: OEME
Lab Phone: 617-918-8490

16060020 $BNAW
16060020 $METW_PE
16060020 DMAW_CHEM
16060020 CYANW

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0004	SW-04	SVOC	6/16/2016	14:10	2	1 Liter Glass	4 C	
	0616-0004	SW-04	Total Metals+Hg	6/16/2016	14:10	1	Poly Bottle	HNO3 pH<2	
	0616-0004	SW-04	Total Cyanide	6/16/2016	14:10	1	Poly Bottle	NaOH	
	0616-0005	SW-05	SVOC	6/16/2016	14:20	2	1 Liter Glass	4 C	
	0616-0005	SW-05	Total Metals+Hg	6/16/2016	14:20	1	Poly Bottle	HNO3 pH<2	
	0616-0005	SW-05	Total Cyanide	6/16/2016	14:20	1	Poly Bottle	NaOH	

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	6/17/16 0741	ESAT	6-17-16 07:41	

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United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

June 23, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project No: 16060019
Project: Norwood Dye Run-off
Analysis: Direct Mercury Analysis in Water
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/16/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGDMA1.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.23 07:53:27 -04'00'

16060019DMAW_CHEM

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

True values for high and low LFBs were 75ng and 15ng respectively. Results for the high LFB and low LFB were 73ng and 15ng respectively. Percent recoveries were 97% and 100% respectively. The acceptance range is 80% - 120%.

Norwood Dye Run-off

Direct Mercury Analysis in Water

Matrix: Water

Sample Number	Lab ID	Collected	Analysis	Concentration ng/uL	RL ng/uL	Qualifier
0616-0001	AB62193	06/16/2016	06/19/2016	ND	0.08	
Comments:						
0616-0002	AB62194	06/16/2016	06/19/2016	ND	0.08	
Comments:						
0616-0003	AB62195	06/16/2016	06/19/2016	ND	0.08	
Comments:						
Blank			06/19/2016	ND	0.08	
Comments:						

Norwood Dye Run-off

MATRIX SPIKE (MS) Results

SAMPLE ID	PARAMETER	SPIKE ADDED ng/uL	SAMPLE CONCENTRATION ng/uL	MS CONCENTRATION ng/uL	MS % REC	QC LIMITS (% REC)
AB62195	Direct Mercury Analysis in Wate	0.13	ND	0.13	100	80 - 120

Comments:

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT ng/uL	SAMPLE DUP RESULT ng/uL	PRECISION RPD %	QC LIMITS (%RPD)
AB62193	Direct Mercury Analysis in Water	ND	ND	NC	20

Norwood Dye Run-off

Low/High Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ng/uL	LFB RESULT ng/uL	LFB RECOVERY %	QC LIMITS %
High Level				
Direct Mercury Analysis in Water	0.75	0.73	97.3	85 - 115
Low Level				
Direct Mercury Analysis in Water	0.15	0.15	100	85 - 115

Comments:

PN 16060019

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061616-143337-0001

Lab: OEME
Lab Phone: 617-918-8490

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0001	SW-01	SVOC + pH (PEC)	6/16/2016	13:10	2	1 Liter Glass	4 C	
	0616-0001	SW-01	Total Cyanide	6/16/2016	13:10	1	Poly Bottle	NaOH	
	0616-0001	SW-01	Total Metals+Hg	6/16/2016	13:10	1	Poly Bottle	HNO3 pH<2	
	0616-0002	SW-02	SVOC + pH (PEC)	6/16/2016	13:20	2	1 Liter Glass	4 C	
	0616-0002	SW-02	Total Cyanide	6/16/2016	13:20	1	Poly Bottle	NaOH	
	0616-0002	SW-02	Total Metals+Hg	6/16/2016	13:20	1	Poly Bottle	HNO3 pH<2	
	0616-0003	SW-03	SVOC + pH (PEC)	6/16/2016	13:45	2	1 Liter Glass	4 C	
	0616-0003	SW-03	Total Cyanide	6/16/2016	13:45	1	Poly Bottle	NaOH	
	0616-0003	SW-03	Total Metals+Hg	6/16/2016	13:45	1	Poly Bottle	HNO3 pH<2	

16060019 $BNAW
16060019 pH-W
16060019 $METW_PE
16060019 CYANW
16060019 DMAW_CHEM

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	[signature] / Weston	6/16/16 1440	[signature] / Weston	6/16/16 1440	OK
ALL	[signature] / Weston	6/16/16 1615	[signature] CSAT	6/16/16 16:15	7°C

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

June 23, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project No: 16060020
Project: Norwood Dye Run-off
Analysis: Direct Mercury Analysis in Water
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/17/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGDMA1.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.23 07:55:57 -04'00'

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

True values for high and low LFBs were 75ng and 15ng respectively. Results for the high LFB and low LFB were 73ng and 15ng respectively. Percent recoveries were 97% and 100% respectively. The acceptance range is 80% - 120%..

Norwood Dye Run-off

Direct Mercury Analysis in Water

Matrix: Water

Sample Number	Lab ID	Collected	Analysis	Concentration ng/uL	RL ng/uL	Qualifier
0616-0004	AB62196	06/16/2016	06/19/2016	ND	0.08	
Comments:						
0616-0005	AB62197	06/16/2016	06/19/2016	ND	0.08	
Comments:						
Blank			06/19/2016	ND	0.08	
Comments:						

Norwood Dye Run-off

MATRIX SPIKE (MS) Results

SAMPLE ID	PARAMETER	SPIKE ADDED ng/uL	SAMPLE CONCENTRATION ng/uL	MS CONCENTRATION ng/uL	MS % REC	QC LIMITS (% REC)
AB62196	Direct Mercury Analysis in Wate	0.13	ND	0.14	108	80 - 120

Comments:

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT ng/uL	SAMPLE DUP RESULT ng/uL	PRECISION RPD %	QC LIMITS (%RPD)
AB62197	Direct Mercury Analysis in Water	ND	ND	NC	20

Norwood Dye Run-off

Low/High Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ng/uL	LFB RESULT ng/uL	LFB RECOVERY %	QC LIMITS %
High Level				
Direct Mercury Analysis in Water	0.75	0.73	97.3	85 - 115
Low Level				
Direct Mercury Analysis in Water	0.15	0.15	100	85 - 115

Comments:

PN: 160600 20

Page 6 of 6

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061716-064855-0002

Lab: OEME
Lab Phone: 617-918-8490

16060020 $BNAW
16060020 $METW_PE
16060020 DMAW_CHEM
16060020 CYANW

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0004	SW-04	SVOC	6/16/2016	14:10	2	1 Liter Glass	4 C	
	0616-0004	SW-04	Total Metals+Hg	6/16/2016	14:10	1	Poly Bottle	HNO3 pH<2	
	0616-0004	SW-04	Total Cyanide	6/16/2016	14:10	1	Poly Bottle	NaOH	
	0616-0005	SW-05	SVOC	6/16/2016	14:20	2	1 Liter Glass	4 C	
	0616-0005	SW-05	Total Metals+Hg	6/16/2016	14:20	1	Poly Bottle	HNO3 pH<2	
	0616-0005	SW-05	Total Cyanide	6/16/2016	14:20	1	Poly Bottle	NaOH	

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	6/17/16 0741	ESAT	6-17-16 07:41	

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

June 20, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project No: 16060019
Project: Norwood Dye Run-off
Analysis: Total Cyanide in Water
EPA Chemist: Bhavita Patel

Date Samples Received by the Laboratory: 06/16/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGCN15.

The Cyanide SOP is Based on Lachat Method 10-204-00-1-X.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340.

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.20 16:08:30 -04'00'

16060019CYANW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

Total Cyanide in Water

Matrix: Water

Sample Number	Lab ID	Collected	Extracted	Analysis	Concentration ug/L	RL ug/L	Qualifier
0616-0001	AB62193	06/16/2016	06/20/2016	06/20/2016	**33**	5.0	
Comments:							
0616-0002	AB62194	06/16/2016	06/20/2016	06/20/2016	ND	5.0	
Comments:							
0616-0003	AB62195	06/16/2016	06/20/2016	06/20/2016	ND	5.0	
Comments:							
Blank			06/20/2016	06/20/2016	ND	5.0	
Comments:							

Norwood Dye Run-off

MATRIX SPIKE (MS) Results

SAMPLE ID	PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
AB62195	Total Cyanide in Water	200	ND	199	99.5	78 - 117

Comments:

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUP RESULT ug/L	PRECISION RPD %	QC LIMITS (%RPD)
AB62195	Total Cyanide in Water	ND	ND	NC	20

Norwood Dye Run-off

Low/High Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
High Level				
Total Cyanide in Water	400	372	93.0	90 - 110
Low Level				
Total Cyanide in Water	40	39.4	98.5	90 - 110

Comments:

PN 16060019

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061616-143337-0001

Lab: OEME
Lab Phone: 617-918-8490

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0001	SW-01	SVOC + pH (PEC)	6/16/2016	13:10	2	1 Liter Glass	4 C	
	0616-0001	SW-01	Total Cyanide	6/16/2016	13:10	1	Poly Bottle	NaOH	
	0616-0001	SW-01	Total Metals+Hg	6/16/2016	13:10	1	Poly Bottle	HNO3 pH<2	
	0616-0002	SW-02	SVOC + pH (PEC)	6/16/2016	13:20	2	1 Liter Glass	4 C	
	0616-0002	SW-02	Total Cyanide	6/16/2016	13:20	1	Poly Bottle	NaOH	
	0616-0002	SW-02	Total Metals+Hg	6/16/2016	13:20	1	Poly Bottle	HNO3 pH<2	
	0616-0003	SW-03	SVOC + pH (PEC)	6/16/2016	13:45	2	1 Liter Glass	4 C	
	0616-0003	SW-03	Total Cyanide	6/16/2016	13:45	1	Poly Bottle	NaOH	
	0616-0003	SW-03	Total Metals+Hg	6/16/2016	13:45	1	Poly Bottle	HNO3 pH<2	

16060019 $BNAW
16060019 pH-W
16060019 $METW_PE
16060019 CYANW
16060019 DMAW_CHEM

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	[signature] / Weston	6/16/16 1440	[signature] / Weston	6/16/16 1440	OK
ALL	[signature] / Weston	6/16/16 1615	[signature] CSAT	6/16/16 16:15	7°C

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

June 20, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project No: 16060020
Project: Norwood Dye Run-off
Analysis: Total Cyanide in Water
EPA Chemist: Bhavita Patel

Date Samples Received by the Laboratory: 06/17/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGCN15.

The Cyanide SOP is Based on Lachat Method 10-204-00-1-X.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340.

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.20 16:11:34 -04'00'

16060020CYANW

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

Total Cyanide in Water

Matrix: Water

Sample Number	Lab ID	Collected	Extracted	Analysis	Concentration ug/L	RL ug/L	Qualifier
0616-0004	AB62196	06/16/2016	06/20/2016	06/20/2016	ND	5.0	
Comments:							
0616-0005	AB62197	06/16/2016	06/20/2016	06/20/2016	ND	5.0	
Comments:							
Blank			06/20/2016	06/20/2016	ND	5.0	
Comments:							

Norwood Dye Run-off

MATRIX SPIKE (MS) Results

SAMPLE ID	PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
AB62197	Total Cyanide in Water	200	ND	197	98.5	78 - 117

Comments:

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUP RESULT ug/L	PRECISION RPD %	QC LIMITS (%RPD)
AB62197	Total Cyanide in Water	ND	ND	NC	20

Norwood Dye Run-off

Low/High Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
High Level				
Total Cyanide in Water	400	372	93.0	90 - 110
Low Level				
Total Cyanide in Water	40	39.4	98.5	90 - 110

Comments:

PN: 160600 20

Page 6 of 6

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061716-064855-0002

Lab: OEME
Lab Phone: 617-918-8490

16060020 $BNAW
16060020 $METW_PE
16060020 DMAW_CHEM
16060020 CYANW

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0004	SW-04	SVOC	6/16/2016	14:10	2	1 Liter Glass	4 C	
	0616-0004	SW-04	Total Metals+Hg	6/16/2016	14:10	1	Poly Bottle	HNO3 pH<2	
	0616-0004	SW-04	Total Cyanide	6/16/2016	14:10	1	Poly Bottle	NaOH	
	0616-0005	SW-05	SVOC	6/16/2016	14:20	2	1 Liter Glass	4 C	
	0616-0005	SW-05	Total Metals+Hg	6/16/2016	14:20	1	Poly Bottle	HNO3 pH<2	
	0616-0005	SW-05	Total Cyanide	6/16/2016	14:20	1	Poly Bottle	NaOH	

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	6/17/16 0741	ESAT	6-17-16 07:41	

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Results

June 20, 2016

Mike Barry - Mail Code OSRR02-2
US EPA New England R1

Project No: 16060019
Project: Norwood Dye Run-off
Analysis: pH in Water
EPA Chemist: Bhavita Patel

Date Samples Received by the Laboratory: 06/16/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGPH6.

The pH analysis SOP is based on Method 9040B pH Electrometric Measurement as stated in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Update IIB, Volume IC, Chapter 6, Revision 2, January 1995", and SM 4500 -H+B

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340.

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2016.06.20 16:10:05 -04'00'

16060019PH-W

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
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L = Estimated value is below the calibration range
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P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Norwood Dye Run-off

pH in Water

Matrix: Water

Sample Number	Lab ID	Collected	Analysis	Concentration pH
0616-0001	AB62193	06/16/2016	06/20/2016	**9.0**
Comments:				
0616-0002	AB62194	06/16/2016	06/20/2016	**9.3**
Comments:				
0616-0003	AB62195	06/16/2016	06/20/2016	**7.7**
Comments:				

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Norwood Dye Run-off

Laboratory Duplicate Results

SAMPLE ID	PARAMETER	SAMPLE RESULT pH	SAMPLE DUP RESULT pH	PRECISION RPD %	QC LIMITS (%RPD)
AB62194	pH in Water	9.3	9.3	0.0	20

PN 16060019

Weston Solutions, Inc
Region I START IV
Norwood Fire ER

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: John McKeown
Contact Phone: 617-312-5163

No: 1-061616-143337-0001

Lab: OEME
Lab Phone: 617-918-8490

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	0616-0001	SW-01	SVOC + pH (PEC)	6/16/2016	13:10	2	1 Liter Glass	4 C	
	0616-0001	SW-01	Total Cyanide	6/16/2016	13:10	1	Poly Bottle	NaOH	
	0616-0001	SW-01	Total Metals+Hg	6/16/2016	13:10	1	Poly Bottle	HNO3 pH<2	
	0616-0002	SW-02	SVOC + pH (PEC)	6/16/2016	13:20	2	1 Liter Glass	4 C	
	0616-0002	SW-02	Total Cyanide	6/16/2016	13:20	1	Poly Bottle	NaOH	
	0616-0002	SW-02	Total Metals+Hg	6/16/2016	13:20	1	Poly Bottle	HNO3 pH<2	
	0616-0003	SW-03	SVOC + pH (PEC)	6/16/2016	13:45	2	1 Liter Glass	4 C	
	0616-0003	SW-03	Total Cyanide	6/16/2016	13:45	1	Poly Bottle	NaOH	
	0616-0003	SW-03	Total Metals+Hg	6/16/2016	13:45	1	Poly Bottle	HNO3 pH<2	

16060019 $BNAW
16060019 pH-W
16060019 $METW_PE
16060019 CYANW
16060019 DMAW_CHEM

Special Instructions: Please email results to mckeown.john@epa.gov

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	[signature] / Weston	6/16/16 1440	[signature] / Weston	6/16/16 1440	OK
ALL	[signature] / Weston	6/16/16 1615	[signature] CSAT	6/16/16 16:15	7°C

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Attachment E

Analytical Data and Chain-of-Custody Records
Asbestos in Air Samples

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Dedicated to a Cleaner
Environment Since 1982

NYELAP #11993
PCM, PLM and Lead

BATTA LABORATORIES, LLC

A Certified MBE Company

Delaware Industrial Park, 6 Garfield Way,
Newark, DE 19713-5817
Tel. (302) 737-3376 Fax (302) 737-5764

Web : http://www.battaenv.com E-mail : battaenv@battaenv.com

E.P.A. LAB ID # DE 004

A.I.H.A. /NLLAP #100448

NVLAP #101032

CERTIFICATE OF PCM ANALYSIS

Test Method: NIOSH 7400, Issue 2: 15 August 1994

Report Date: 6/22/2016

Sampling Data

BLI Project#: L6888O
Project Name: WESTON SOLUTIONS,INC.-WALK IN-CASE#0866F

Date Sampled: 6/18/16
Sampled By: CLIENT
Date Analyzed: 6/22/16

Analytical Parameters

Effective Filter Area (mm ^{2}): 385

Graticule Field Area(mm ^{2}): 0.00785

Lab Sample #	Client Sample #	Sample Location	Sample Type	Sample Volume(L)	Fields	Fibers	Detection Limit(F/cc)	Results F/mm ^{2}	Results F/cc
878723	D34031	AS-01	N/A	596.5	100	8	0.005	10.2	0.007
878724	D34032	AS-02	N/A	734.4	100	6	0.004	7.6	0.004
878725	D34033	AS-03	N/A	800.8	100	<5.5	0.003	<7.0	<0.003
878726	D34034	AS-O2	N/A	892.7	100	<5.5	0.003	<7.0	<0.003
878727	D34035	AS-O3	N/A	656.5	100	8	0.004	10.2	0.006
878728	D34036	AS-O4	N/A	746.7	100	6	0.004	7.6	0.004

ANALYST: W. SUCCAROTTE

REVIEWED BY:

N.C. Batta / R. Shumate
(QA/QC Officer)

* Results pertain only to the items tested.
* This report does not constitute endorsement by AIHA and/or any other U.S. government agencies.
* Named analyst may not be sole analyst. Refer to Chain of Custody for additional analysts.
* Sample volumes are calculated from data supplied by the client. Batta Laboratories, Inc. does not accept liability for results expressed in fibers per cubic centimeter. Furthermore, Batta Laboratories assumes no responsibility for the accuracy of results reflected by the use of improper collection techniques or equipment.
* Current YTD Sr value is 0.22 for intralaboratory and 0.32 for interlaboratory. This value may change slightly over time.
* Sample results listed above are not blank-corrected. NIOSH 7400 requires submission of blanks (minimum 2 or 10%) with samples. Batta assumes no responsibility for collection inconsistent with the methond.

Dedicated to a Cleaner
Environment Since 1982

NYELAP #11993
PCM, PLM and Lead

batta LABORATORIES

BATTA LABORATORIES, LLC

A Certified MBE Company

Delaware Industrial Park, 6 Garfield Way,
Newark, DE 19713-5817
Tel. (302) 737-3376 Fax (302) 737-5764

Web : http://www.battaenv.com E-mail : battaenv@battaenv.com

E.P.A. LAB ID # DE 004

A.I.H.A. /NLLAP
#101448

NVLAP
#101032

CERTIFICATE OF PCM ANALYSIS

Test Method: NIOSH 7400, Issue 2: 15 August 1994

Report Date: 6/22/2016

Sampling Data

BLI Project#: L6888O
Project Name: WESTON SOLUTIONS,INC.-WALK IN-CASE#0866F

Date Sampled: 6/20/16
Sampled By: CLIENT
Date Analyzed: 6/22/16

Analytical Parameters

Effective Filter Area (mm ^{2}): 385

Graticule Field Area(mm ^{2}): 0.00785

Lab Sample #	Client Sample #	Sample Location	Sample Type	Sample Volume(L)	Fields	Fibers	Detection Limit(F/cc)	Results F/mm ^{2}	Results F/cc
878729	D34037	AS-O1	N/A	1061.1	100	<5.5	0.003	<7.0	<0.003
878730	D34038	AS-O2	N/A	1129	100	<5.5	0.002	<7.0	<0.002
878731	D34039	AS-O3	N/A	1031	100	9	0.003	11.5	0.004
878732	D34040	AS-O4	N/A	1255	100	7	0.002	8.9	0.003
878733	D34041	FB-01	N/A	0	100	<5.5	N/A	<7.0	N/A
878734	D34042	LB-01	N/A	0	100	<5.5	N/A	<7.0	N/A

ANALYST: W. SUCCAROTTE

REVIEWED BY:

N.C. Batta / R. Shumate
(QA/QC Officer)

* Results pertain only to the items tested.
* This report does not constitute endorsement by AIHA and/or any other U.S. government agencies.
* Named analyst may not be sole analyst. Refer to Chain of Custody for additional analysts.
* Sample volumes are calculated from data supplied by the client. Batta Laboratories, Inc. does not accept liability for results expressed in fibers per cubic centimeter. Furthermore, Batta Laboratories assumes no responsibility for the accuracy of results reflected by the use of improper collection techniques or equipment.
* Current YTD Sr value is 0.22 for intralaboratory and 0.32 for interlaboratory. This value may change slightly over time.
* Sample results listed above are not blank-corrected. NIOSH 7400 requires submission of blanks (minimum 2 or 10%) with samples. Batta assumes no responsibility for collection inconsistent with the methond.

Weston Solutions, Inc
Region I START IV
DAS #: 0886F
AirbillNo: 776565344610

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: Bill Mahany
Contact Phone: 978-621-1211

No: 1-062016-191332-0004

Lab: Batta Environmental
Lab Phone: 302-737-3376

LQ8880

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Volume	Vol Units
878 ~~723~~ 722	D34031	AS-01	Asbestos/PCM	6/18/2016	18:05	1	MCE Cassette	596.2	Liters
723	D34032	AS-02	Asbestos/PCM	6/18/2016	18:10	1	MCE Cassette	734.43	Liters
724	D34033	AS-01	Asbestos/PCM	6/19/2016	13:55	1	MCE Cassette	800.84	Liters
725	D34034	AS-02	Asbestos/PCM	6/19/2016	14:00	1	MCE Cassette	892.68	Liters
726	D34035	AS-03	Asbestos/PCM	6/19/2016	14:05	1	MCE Cassette	656.08	Liters
727	D34036	AS-04	Asbestos/PCM	6/19/2016	14:10	1	MCE Cassette	746.4	Liters
728	D34037	AS-01	Asbestos/PCM	6/20/2016	15:05	1	MCE Cassette	1061.75	Liters
729	D34038	AS-02	Asbestos/PCM	6/20/2016	15:10	1	MCE Cassette	1128.23	Liters
730	D34039	AS-03	Asbestos/PCM	6/20/2016	15:20	1	MCE Cassette	1031.73	Liters
731	D34040	AS-04	Asbestos/PCM	6/20/2016	15:30	1	MCE Cassette	1255.06	Liters
732	D34041	FB-01	Asbestos/PCM	6/20/2016	15:40	1	MCE Cassette		Liters
733	D34042	LB-01	Asbestos/PCM	6/20/2016	15:45	1	MCE Cassette		Liters
734									

8/100
6/100
4/100
5/100
8/100
6/100
5/100
4/100
9/100
3/100
2/100
1/100

Special Instructions: 24-hour verbals.
Please email results to bill.mahany@westonsolutions.com.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
fed Ex	B Mahany / Weston	6/20/16 1915			
			CM / Batta	6/21/16 1045	good

Dedicated to a Cleaner Environment Since 1982

NY ELAP Lab# 11993
PCM, PLM, TEM & Lead

batta LABORATORIES

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 6 Garfield Way - Newark, DE 19713-5817
(302) 737-3376 - Fax (302) 737-5764
Web: htpp://www.battaenv.com E-mail battaenv@battaenv.com

E.P.A. LAB ID# DE004

A.I.H.A./NLLAP #100448 Lead and PLM

NVLAP® NVLAP #101032 PLM and TEM

CERTIFICATE OF TEM ANALYSIS

NIOSH 7402, Asbestos by TEM, Issue 2: 15 August 1994

Report Date: 6/27/2016

Sampling Data

BLI Project #: L6888O

Project Name: Weston Solutions - walk in - Region 1 **Sampling Location:** R01-160616JM

Date Sampled: 6/19-20/2016 **Sampled By:** Client **Date Received:** 6/21/16

Analytical Data

Effective Filter Area (mm^2): 385 **Media:** MCE **Pore Size (µm):** 0.80 **Grid Area (mm^2):** 0.0096

Date Prepped: 6/23/16 **Prepped By:** ARY **Date Analyzed:** 6/27/2016 **Analyzed By:** R Shumate

Client-Supplied Data					Analytical Data				Results	
Lab Sample #	Client Sample #	Sample Type	Sample Location	Sample Volume (L)	PCM (fibers/cc)	PCM (f/mm^2)	Total TEM PCME Fibers (f/cc)	[2] Analytical Sensitivity (f/cc)	[3] Reported Asbestos Fiber Conc. (f/cc)	Asbestos Types Detected
879233	D34035	PCM	AS-03	656.08	0.006	10.19	0.004	0.004	< 0.004	None Detected
879234	D34040	PCM	AS-04	1255.06	0.003	8.92	0.000	0.002	< 0.002	None Detected

1 Reported asbestos fiber conc. (concentration) is based on the total PCME fibers counted.

2 Analytical sensitivity (AS) is based on the sample volume (in liters), fibers per fields and the Walton Beckett graticule area (mm^2) during PCM (NIOSH 7400) analysis.

3 Reported result is expressed as f/cc, ***Asbestos in the Visible Range****.*

WS
PCM Analyst

R Shumate
TEM Analyst

Reviewed By:

Weston Solutions, Inc
Region I START IV
DAS #: 0886F
AirbillNo: 776565344610

COPY

CHAIN OF CUSTODY RECORD
Site #: R01-160616JM
Contact Name: Bill Mahany
Contact Phone: 978-621-1211

No: 1-062016-191332-0004

Lab: Batta Environmental
Lab Phone: 302-737-3376
L68880

Lab #	Sample #	Location	Analyses	Collected	Sample Time	Numb Cont	Container	Volume	Vol Units
878 ~~879~~	D34031	AS-01	Asbestos/PCM	6/18/2016	18:05	1	MCE Cassette	596.2	Liters
723	D34032	AS-02	Asbestos/PCM	6/18/2016	18:10	1	MCE Cassette	734.43	Liters
724	D34033	AS-01	Asbestos/PCM	6/19/2016	13:55	1	MCE Cassette	800.84	Liters
725	D34034	AS-02	Asbestos/PCM	6/19/2016	14:00	1	MCE Cassette	892.68	Liters
726	D34035	AS-03	Asbestos/PCM	6/19/2016	14:05	1	MCE Cassette	656.08	Liters
727	D34036	AS-04	Asbestos/PCM	6/19/2016	14:10	1	MCE Cassette	746.4	Liters
879 233 728	~~D34037~~	AS-01	Asbestos/PCM	6/20/2016	15:05	1	MCE Cassette	1061.75	Liters
729	D34038	AS-02	Asbestos/PCM	6/20/2016	15:10	1	MCE Cassette	1128.23	Liters
730	D34039	AS-03	Asbestos/PCM	6/20/2016	15:20	1	MCE Cassette	1031.73	Liters
- 234 731	D34040	AS-04	Asbestos/PCM	6/20/2016	15:30	1	MCE Cassette	1255.06	Liters
732	D34041	FB-01	Asbestos/PCM	6/20/2016	15:40	1	MCE Cassette		Liters
733	D34042	LB-01	Asbestos/PCM	6/20/2016	15:45	1	MCE Cassette		Liters
734									

8/100 6/100 8/100 5/100 8/100 6/100 5/100 4/100 9/100 3/100 8/100 1/100

Special Instructions: 24-hour verbals.
Please email results to bill.mahany@westonsolutions.com.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
FedEx	BM / Weston	6/20/16 1915			
			CM / Batta	6/21/16 1045	good